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Metamodern Strategy: A System Of Multi-Ontological Sense Making

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METAMODERN STRATEGY: A SYSTEM OF MULTI-ONTOLOGICAL SENSE MAKING

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Abstract

Multi-ontological sense making in irreducible social systems requires the use of different worldviews to generate contextually appropriate understandings and insights for action in different systems states. While models exist for describing complex dynamics in social systems, no frameworks or aids exist to explain the system of worldviews.

This dissertation developed a conceptual scheme that will aid in multi-ontological sense making in social systems. This conceptual scheme has both theoretical and practical implications for visualizing, understanding, and responding to social systems and ultimately to complexity. To develop this new conceptual scheme, a qualitative meta-synthesis approach was adopted to develop theory and to develop a framework for classifying management approaches, tools and techniques to corresponding worldviews for use in dynamic and complicated social systems. The research design was sequential, with four phases.

In phase one a content analysis of 16 worldviews was conducted to develop a classification framework for worldviews. In phase two the worldview classification framework was then applied to 35 strategy consulting approaches to categorize the approaches to differing underlying worldviews and to understand the ontological mapping of the differing approaches. Phase three was analyzing the data, the results of which showed that strategy consulting engagements cast sense making in social systems primarily into three simplified quadrants: the simple, complex, and complicated. The results further showed that only the process consulting approaches adopted a multi-dimensional, worldview-driven approach to social systems, an approach that moved beyond the simplified states of the expert, doctor-patient, and emergent approaches to strategy consulting. In phase four a new theory of sense making was developed: the *aspectus system*. The aspectus system stresses the importance of segregating sense making activities in social systems into two distinct worldview-driven categories: (a) simplified sense making which informs and is followed by (b) metamodern sense making. In doing so, the

Aspectus system separates worldview-driven sense making in social systems into a separate domain, emphasizing that social systems must be considered as both complex and complicated and also as distinct from other types of systems. The aspectus system application in shared sense making was then tested in a thought experiment to demonstrate how it should be applied in practice. The results indicate that a worldview-driven, metamodern approach to multi- ontological sense making in irreducible complex and complicated social systems generates contextually appropriate models for understanding, insights, and actions.

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Glossary

The glossary contains a list of words, terms, and their specific definitions, which have been developed for this study. Some of the words contained in this study, although appearing to be standard, have specific definitions in the context of this study when discussing complexity and social systems.

Complex. The dynamic component of complexity associated with a bottom-up approach to self-organization. Typical examples of this dynamic component of self-organization include the self-organizing dynamics of traffic or flock of migrating birds.

Complexity Science. The "formalist and simulation-based approach to complexity, with its roots in the natural sciences, that has proven highly capable of analyzing many types of complex systems that have otherwise been impenetrable to formal approaches" **(**Andersson, Törnberg, & Törnberg, 2014, p. 2)**.**

Complexity. The emergent manifestation of the complex and complicatedness of social reality.

Complicatedness. The structural component of complexity sometimes referred to as structural complexity. It is characterized by top-down organization and ideas such as cross-coupling in systems and multi dimensionality.

Epistemology. "A theory concerning the means by which we may have and express knowledge of the world" (Checkland, 2000, p. 314).

Ontology. "A theory of what the world is or contains" (Checkland, 2000, p. 315).

Self-organization. An important concept in complexity science which describes the process by which order emerges without any centralized form of control or management. "In particular, it is microscopic order" that through dynamic emergence, becomes "extended to macroscopic scales" (Törnberg, 2017, p. 146).

Structural complexity. The structural component of complexity excluding the dynamic aspects.

System. "A model of a whole entity that when applied to human activity is characterized fundamentally in terms of hierarchal structure, emergent properties, communication, and control. Observers may often choose to relate this model to real world activity. When applied to natural or man-made entities, the crucial characteristic is the emergent properties of the whole" (Checkland, 2000, pp. 317-318).

Systems Thinking. The body of knowledge for "seeing wholes and a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots" (Senge, 2006, p. 68).

Wicked Problem. A category of problems that escape definition and where there is a constant feeling that the efficacy of proposed solutions is called into question not only with regard to feasibility and adequacy but also with regard to the risk of creating cascades of other problems that are impossible to foresee and that may be even worse than the initial problem (Andersson, Törnberg, & Törnberg, 2014, p. 8).

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The impact of the COVID-19 global pandemic has multiplied the already enormous challenges of the early 21st century. Within the developed countries, the tremendous impact of complexity, volatility, and uncertainty affects the processes, businesses, and services on which we rely; Covid's effects and influences have stopped and/or changed many.

Over the past few decades, increased and improved technology and interconnectivity have accelerated the global economy, helped many businesses to thrive and new economies to emerge, and improved the lives of millions of people across the globe. Despite these rapid advancements, many are suffering from the impact of this *complexity evolution*. We have never seen anything like this before. Never have we been presented with so much complexity, uncertainty, and volatility.

Mitchell (2009) showed that complexity in social systems has been studied for millennia. The origins of complexity research for Mitchell (2009) reside in the work of early pioneers in scientific, social, and philosophical thought such as Aristotle, Galileo and Isaac Newton. The study of complexity, although not new in social systems, is practically compulsory in the current environment, as we inevitably march to more rapid and greater swings at the edge of chaos. The drive for more real-time business information from a variety of sources, combined with advances in business computing, technology, and artificial intelligence, are creating more varied and reliable sources of data than have ever existed in human history. Exponential expansion in the sources and volumes of data collected by corporations, governments and networks have also, simultaneously, created challenges with regards to ethics, governance, trust, and ultimate questions about the reliability, consistency, and validity of the data that is being collected.

Given the exponential rate of growth in the volumes and sources of data that are collected, corporations, governments, and individuals have tried to improve their capacity to predict demand, supply, pricing, patterns, and ultimately each other's behaviors, through very sophisticated learning algorithms, neural networks, artificial intelligence programs, agent-based models, mental models, and other designs. Greater levels of sophistication in the modeling of the social world have, at the same time, driven greater sensitivity in developing our mental models of the world and hence greater degrees of disconfirmation and changes in our behavior, thinking, and decision making.

Greater degrees of disconfirmation in our mental models of the world drive adaptive social systems from complexity to chaos through continual changes of these mental models. No static equilibrium state exists because social systems are continually moving between states, as their direction and dynamics are constantly emerging. The world at the same time has also become structurally more complicated than ever before, hindering our ability to understand the vast number of interactions between the ever-growing number of components and entities, which now constitute our social reality.

Although this phenomenon of functioning at the edge of chaos in structurally complicated adaptive social systems is not new; what is new is the rate of change in the mental models of actors. This is due to increased rates of disconfirmation from digital disruption, design, innovation, data, technology, and ultimately structural complexity which are increasingly leading to wilder and larger fluctuations around complexity and chaos. This premise is supported by anecdotal evidence from diverse sources such as stock traders, Chief Executive Officers, and media and social commentators who often highlight how quickly decision rules are changing in the social world, leading to major and far-reaching disruptions in business models, the life span of companies, trading rules, politics, and social dynamics. How we navigate complexity and what tools we use has emerged as a subject which has received an increased level of scrutiny over the past few years.

Significance and Rational

Technology in developed nations has become deeply embedded in the day-to-day activities of most people, organizations, and social systems globally. It mediates a number of social interactions among people through the internet, social media, and messaging and forms a fundamental component of the landscape of both private and public organizations, globally touching all organizational aspects from human resources, administration, manufacturing, accounting, and distribution, to logistics, sales, and marketing. Henfridsson (1999) argued that meaning must be created from data, technology, and social contexts to resolve complexity and ambiguity. However, as Henfridsson (1999) and Hirschhorn and Gilmore (1992) stated, technology cannot be viewed separately or in isolation; it must be considered part of all organizational issues and contexts. They further argued that in the long run, it is clear that technology is transforming social and organizational dimensions. The down side to this proliferation of technology and the resulting information revolution for Henfridsson (1999) is that instead of creating more clarity for ambiguous contexts, the proliferation of information and data, has, instead, created more structural and dynamic complexity because more information and data create more interconnections than ever before, leading to new interpretations in ambiguous and complex contexts, which must be added to our old interpretations. How can we approach this new reality? Henfridsson (1999), Dymek (2008), and Rousseau and Billingham (2018) suggested that people create meaning in any context via the processes of *sense making.*

Sense making, as Weick, Sutcliffe and Obstfeld (2005) described it, is the act of rationalizing our reality with our assumptions about that reality in order to develop a guide for action. According to this conception, sense making builds both insight and the context for action, but also implicitly implies a choice between ontological presumptions about reality which serve as our guide to insight and action. Sense making as a critical process in comprehending, understanding, and responding to complexity in the world around us will be considered to mean:

> the way that humans choose between multiple possible explanations of sensory and other input as they seek to conform the phenomenological with the real in order to act in such a way as to determine or respond. (Snowden, 2005, p. 46)

Sense making, which may at first appear to be an abstract process, occurs in two important ways in social systems. It is either an *automatic* process undertaken by humans in social systems as described by Weick *et al*. (2005) and Rousseau and Billingham (2018), or it can be part of a controlled, *conscious* set of activities as demonstrated by Boulding (1956), Ackoff (1999), and Snowden (2005) to make sense of social systems.

For Rousseau and Billingham (2018) the *automatic* process of sense making is a complex process, as it requires the integration of both conscious choices about knowledge and experiences and subconscious intuitions in a more or less coherent whole. Expanding our choices through knowledge and experience is thus the only way to truly influence our assumptions of the world. The *conscious* process of sense making expands the knowledge of participants in sense making by establishing assumptions about the world which are not necessarily consistent with the knowledge and experience of the participants in the sense making process. Regardless of which approach is taken, sense making is heavily influenced by assumptions developed through experience and knowledge or adopted through conscious sense making.

Assumptions about our reality as identified by Rousseau and Billingham (2018) are built on a system of ontology, cosmology, metaphysics, axiology, and praxeology, and are collectively described by the German term *weltanschauung* which was popularized by Immanuel Kant in 1790 (Rousseau & Billingham, 2018, p. 3). Weltanschauung refers to a mental construction of reality. As identified by Dent (1999), Wishard (2008), and Rousseau and Billingham (2018) these are also commonly referred to as the *worldview* that "covers all the domains of experience, decision-making, and action and covers all the kinds of information we might have about the nature of the world and our place in the scheme of things" (Rousseau and Billingham, 2018, p. 3).

The term *worldview* will be used to describe a group of assumptions which are common to a collective of people, while the term *individual worldview* will be used to describe the unique worldview which each individual holds and develops in an ongoing process. According to Starr (2018) a worldview is:

> metaphorically like glasses that one wears through which everything visually experienced, seen, and read is interpreted. But as not all experience is visual, it is also like wearing earphones through which everything heard is also interpreted. This means that two people present at the same event but holding differing mindsets may perceive and understand what is seen and heard differently. Mindset for an individual, team/group, and organization is the fundamental cognitive orientation encompassing the whole of one's knowledge and point of view. A leader's mindset/world view can include not only current reality, but also anticipation and expectations of future and ideal states, normative values, emotions, and ethics. (Starr, 2018, pp. 3-4)

How we visualize, conceptualize, and perceive complexity by adopting a worldview as a basis for sense making in a technology-rich, highly interconnected, and structurally complex environment will thus inevitability influence how we think about complexity, what we see as essential, and what we ignore as irrelevant and will ultimately influence how we respond.

Management and organizational sciences have been dominated by the idea that facts can be uncovered through investigation and measurement that will identify causal and repeatable outcomes. Early scholars who influenced the direction of management and organizational sciences include Adam Smith, Fredric Winslow Taylor, Max Weber, and Henri Fayol. Together these scholars applied the principles of the hard sciences to the practice of management and organizational sciences. As Scott and Davis (2015) noted, these early perspectives promoted a grand narrative, stating that organizations and social settings should be regarded as well-designed machines that consist of a series of interrelated means that are contrived to achieve a single, goal-orientated end. These machines,

according to Scott and Davis's (2015) interpretation, must consist of a coherent bringing together of all parts, thus contributing towards the highest possible efficiency of the functioning of the whole by marshaling the interrelationships towards a given, predetermined goal. The dominant mechanistic worldview that this approach created in management and organizational sciences has created an entrenched logic of cause and effect, predictability, objective observation, and ultimately linear causality. Consequently, following this Newtonian model, management and organizational sciences adopted a stance that the world is totally predictable, reducible, and knowable.

Driven by the success of feedback and control devices in World War II, a new intellectual movement emerged in the post-war years intent on replacing this dominant worldview with an appreciation of holism. Ackoff (1981), Capra (1983), Dent (1999; 2013), Wishard (2008), Riemer and Johnston (2019), and Pourdehnad, Wexler, and Wilson (2011) stated that the problem was that this worldview, which had served us well in the past, was now failing to explain with any notion of certainty, the emerging complexities we were confronted with. Ackoff (1981) referred to this type of change as a "transition between ages" (Ackoff, 1981, p. 6) in which we transform our mechanism of understanding and actual comprehension of our reality from one model to another. Capra (1983) described this type of change in our comprehension of the world as a "*crisis of perception*" (Capra, 1983, p.15) and noted that it resulted from applying an obsolete worldview to a complex reality that it can no longer explain. Many scholars have discussed transitions of worldviews including Wishard (2008), Dent (1999, 2013), Pourdehnad and Bharathy (2004), Jackson (2016), Riemer and Johnston (2019), and Kuhn (1962). For Ackoff (1981), Dent (1999), Pourdehnad, Wexler, and Wilson (2011), Wheatley (2006) and Wishard (2008), a shift away from this mechanistic worldview is paramount if corporations, employees, and societies want to deal with the complexities of the emerging world and to remain resilient and competitive. Starr (2020) further stated that when complexity exists in social systems, these early worldviews cannot provide an adequate basis for addressing complexity in our technology-embedded world.

Despite the evolution in worldviews, complexity research developed along two opposing perspectives. One was a highly mathematical approach, driven by advances in computing based on the principles of *complexity science* which was aimed at finding the universal laws that govern complex mathematical systems; the other was a social systemic approach that attempted to facilitate understanding, decision making, and strategy in complex human systems based on *systems thinking*. While both approaches have a common language of co-evolution, adaptation, non-equilibrium, non-linear dynamics, and emergence, several important differences exist between them. Their polarization has built a mutually exclusive view of complexity, with the mathematical approach viewed as a more sophisticated form of reductionism while the social systems approaches are, in contrast, associated with radical holism and emergent worldviews. For emergent worldviews grounded in holism, the influence of chaos theory and sensitivity to initial conditions renders the pipe dream of predictability and control unattainable in complex adaptive social systems. In contrast, mathematical approaches, which occupy a mechanistic worldview, argue that chaos theory helps to remove the veil obscuring the underlying order in all random systems, allowing chaos to be controlled and managed. The primary discourse around complexity has built a polarized landscape where both approaches are underpinned by differing worldviews. Both approaches have merit and deficiencies.

In conjunction with the development of theories about complexity, we have also witnessed a proliferation of management fads, as Gibson and Tesone, (2001) and Snowden (2005) attested. *Management fads* in this sense simply refers to the short-lived enthusiasm for a particular management approach which has been popularized without any real, sustained basis to validate its ongoing effectiveness in a variety of situations. Some examples of management fads that have been popular include Business Process Reengineering (BPR), Design Thinking, Knowledge Management, Agile Product Development and Six-Sigma. It is not my intention to contest the utility of management fads in improving management but simply to note, as Mingers and Brocklesby (1997) noted, that “in recent years, the number of methods, techniques, and methodologies within the broad field of” [management

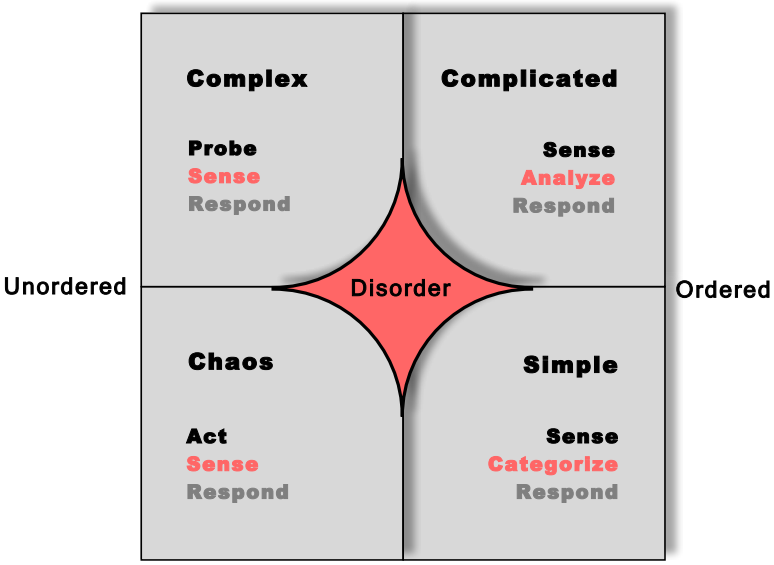
and organizational science] “has burgeoned” (Mingers and Brocklesby, 1997, p. 489). Mingers and Brocklesby (1997) further stated that “there is now an enormous variety of approaches all having very diverse characteristics” and stemming from “various paradigms based on differing philosophical assumptions” (Mingers and Brocklesby, 1997, p. 489). This variety of approaches and paradigms can enhance practice and support Ashby’s (1961) requirement for requisite variety, but as Mingers and Brocklesby (1997) pointed out, “it also poses problems for practitioners who often tend to restrict themselves to one [worldview] or even one methodology” (Mingers and Brocklesby, 1997, p. 489). As Snowden (2005), Dent (1999), Wheatley, (2006) and Wishard (2008) agreed, all too often practitioners, academics, and scholars apply only one worldview to dealing with complexity. The problem for Snowden (2005) was not the methods and tools to deal with complexity; rather, it was that practitioners, managers, academics, and leaders have been trained and conditioned to adopt a single ontological approach to sense making and are primarily grounded in historic worldviews. As he stated his argument, no one ontological method should be considered to have universal application to all situations when dealing with a multifaceted and complex reality. According to Snowden (2005), a multi-ontological, conscious approach to sense making leads to superior mental effectiveness by achieving a requisite level of diversity in our interaction with reality that enables us to sense both weak and strong signals, thereby avoiding the common pitfalls of ingrained pattern recognition. (He did not submit evidence to prove this.) He did, however, develop, along with Kurtz, an approach to multi-ontological sense making which identifies boundaries between tools and methods, the Cynefin framework. While Snowden (2005) developed some valid points about single-ontological sense making which are congruent with the dominant mechanistic ontology paradigm as developed by Ackoff (1981), Dent (1999), Wheatley (2006), and Wishard (2008), his argument did not go far enough to establish the emergent causes of impaired sense making. Further problems for Snowden (2005) and Miller and Hartwick (2002) also arise when practitioners, academics, and scholars apply only one method or management fad to a variety of problems or claim the universal utility of any one approach. As

Snowden (2005) and Andersson and Törnberg (2018) noted, problems in understanding and dealing with complexity occur when researchers, scholars, and practitioners assume only one position while attempting to comprehend and solve real world problems. This belief led Snowden (2005), to conclude that a multi-ontological conscious approach to sense making leads to superior mental effectiveness

Kurtz and Snowden's (2003) Cynefin framework outlines an approach for understanding different domains of social system functioning. The Cynefin framework (Figure 1.1) distinguishes between ontological domains based on the description of causality and identifies five domains in which social systems can function: (a) simple, sometimes also referred to as obvious; (b) complicated; (c) complex; (d) chaotic; and (e) disordered. He also noted that simple and complicated domains were in the realm of *structured or ordered* while complex and chaotic domains were *unstructured or unordered*.

Figure 1.1

Cynefin Framework



Source: Snowden and Boone (2007), Harvard Business Review, 85(11), page 4.

In the simple domain, cause and effect are considered to be logical, repeatable, and predictable; hence, the framework recommends a *sense-categorize-and-respond* approach to problems. In the

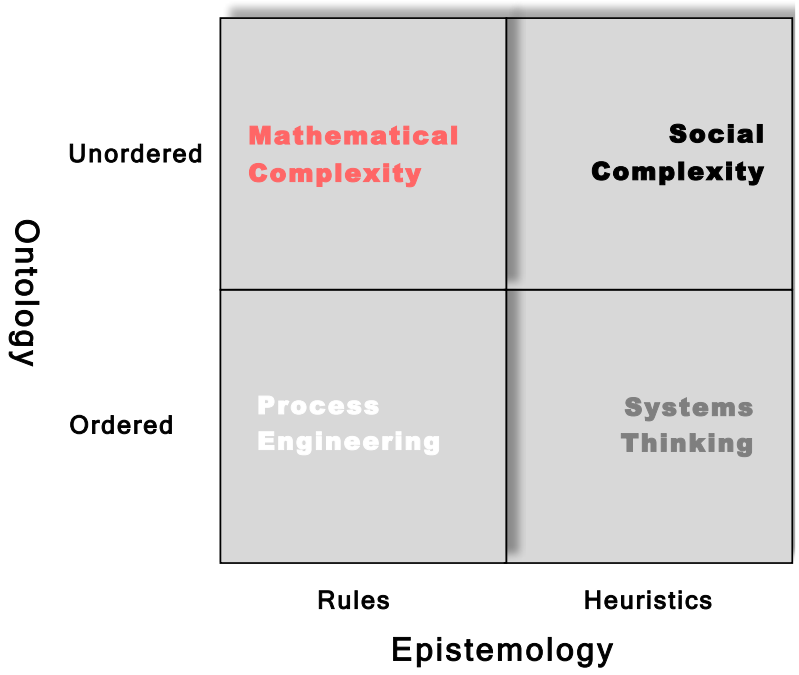
complicated domain, cause and effect are described as being separated by *space-and-time* and not immediately knowable. In this domain a *sense-analyze-and-respond* approach is recommended. In the complex domain, cause and effect are described as *incoherent* and only *retrospectively knowable*, recommending a *probe-sense-and-respond* approach. In the chaotic domain, cause and effect are characterized as *not being perceivable,* recommending an *act-sense-and-respond* model.

Using Cynefin, Kurtz and Snowden demonstrated that social systems could, for example, move from a context of simple to complex or from simple to complicated, requiring different responses at different times based on the *context in* which they are functioning. The current discourse around complexity in management and organizational sciences has been influenced by the Cynefin framework and its 2007 publication by Snowden and Boone as “A Leader's Framework for Decision Making” in the popular *Harvard Business Review*. This exposure led to its widespread application in decision-making, policy, and strategy context over the past few years.

Snowden and Stanbridge (2004) and Snowden (2005) in an earlier version of the Cynefin framework position social complexity in the context of other management disciplines. In both papers, a matrix was discussed which utilizes an ontological classification of ordered-to-un-ordered in the vertical plane and an epistemological continuum of rules and heuristics on the horizontal plane (Figure 1.2). The landscape of management as outlined in both documents identifies four primary functional areas (a) process engineering for an ordered ontology and rule-based epistemology (b) mathematical complexity for un-ordered ontology and rule-based epistemology (c) systems thinking for ordered ontology and heuristics-based epistemology, and finally, (d) social complexity for un-ordered ontology, heuristics-based epistemology. The aim of the matrix outlined in Snowden and Stanbridge (2004) and Snowden (2005) was to facilitate the application of management theory, past practices, and management fads within the multi-ontology sense making framework created by the Cynefin model.

Figure 1.2

The Landscape of Management



Source: Adapted from Snowden and Stanbridge, (2004),"The Landscape of Management: Creating the Context for Understanding Social Complexity" EMERGENCE-MAHWAH-LAWRENCE ERLBAUM, 6(1/2), page 144.

While the landscape of management matrix developed by Snowden and Stanbridge (2004) and Snowden (2005) is succinct and elegant it poses significant problems for managers, academics, researchers, and scholars in its application to research and practice. First, the matrix follows Snowden and Stanbridge (2004) and Snowden's (2005) own conception on the ontology of certain disciplines of management. For example, systems theory is incorrectly assumed to deal only with an ordered ontology and heuristics-based epistemology. While this may be true for Systems Dynamics, this argument does not hold water when abstracting it to other systems theory approaches or the methodologies informed by them, such as Interactive Planning/Idealized Design and Soft System Methodology. Various approaches in management and organizational sciences within varying

disciplines are based on differing worldviews, even though they find their functional homes under one label. What is required but absent from Snowden and Stanbridge (2004), Snowden's (2005) and Snowden and Rancati's (2021) approach to conscious, multi-ontological sense making is an understanding and explanation of *how to match appropriate worldviews and methods with the appropriate contexts in order to build contextual-appropriate understandings of complexity through conscious, multi-ontological sense making.*

Second, while the Cynefin framework is good at explaining different aspects of dynamic social systems as they move through different states of functioning, it is not well suited to explaining multi-dimensional problems because it is solely based on a complexity science perspective. Wicked problems -- perhaps the most challenging manifestations of complexity, and concerned with multi-dimensional overlapping systems -- are not specifically identified in the framework. As Andersson and Törnberg (2018) discussed, the complexity and complicatedness of the world can be mapped to many more system states than simply using the umbrella category of *complexity*. For Andersson and Törnberg (2018) social systems actually rank highly in dynamic complex characteristics and structural complicatedness which both interact in emergent ways. They are not simply a mix of complex and complicatedness but rather something new and transformative which is quite unlike either domain. The Cynefin framework in the context of Andersson and Törnberg's (2018) mapping of complex and complicated fails to comprehensively appreciate the landscape of complexity and complicatedness, which occur in social systems. Similarly, different states of simple and complicated systems exist, requiring resolution with different worldviews and methods.

What is required is a less ambiguous system of conscious, multi-ontological sense making that addresses a wider range of system states, domains, and problems as well as the dynamics of social systems and worldviews. Furthermore, while the impact of technology on sense making is widely recognized, neither the Cynefin nor other frameworks suggest how technology can best be utilized to aid in sense making in an increasingly complex and complicated social reality.

Worldviews should not be considered in isolation. As Toffler (1984) noted more than three decades ago, no particular worldview is necessarily an irreconcilable pole from the others; rather, they are all necessary components in the same system which work together to co-produce the end state. In line with this approach and to ensure cognitive effectiveness in context formulation, a system of worldviews is required for multi-ontological sense making. A system of worldviews will build contextually appropriate understandings of social systems and of complexity, the dynamic complex and complicatedness, and other systems states by embracing holism in multi-ontological sense making.

Problem Statement

Multi-ontological sense making in irreducible social systems requires the use of different worldviews to generate contextually appropriate understandings and insights for action in different systems states. Traditional management approaches and tools have demonstrated limited effectiveness and have actually been shown to be counterproductive when dealing with these irreducible complex and complicated social systems. Based on these shortcomings a new genre of tools and worldviews emerged. The new genre of worldviews and tools is diverse, however, and not applicable to all the same categories of situations and problems for visualizing, understanding, and responding to dynamic social systems. Further, problems emerge due to an incomplete mapping of the different types of situations and problems that can be found within the categories of systems states, domains, and contexts. While models exist for describing dynamics in social systems, no frameworks or aids exist to explain the system of worldviews, a requirement for generating contextually appropriate understandings and insights for actions, and nor does a detailed approach exist to facilitate the clarification of appropriate management tools and methods for use with each worldview.

Research Questions

This study seeks to uncover the systems of multi-ontological sense making among the variables discussed above. The research questions are:

1. **What system of worldviews is required to generate contextually appropriate models for visualizing and understanding social systems?**
2. **What management methods and techniques may be used within the system of worldviews in different systems states to produce contextually appropriate analysis and actions to respond to social systems?**

By building a more comprehensive understanding of the system of worldviews and its functioning in multi-ontological sense making practitioners, researchers and academics will be in a better position to select more appropriate methods for understanding, interpretation, and action. Navigating social systems and the challenges of complexity, dynamics, emergence, complicatedness, and the complex requires the re-evaluation of our basic underlying assumptions to sense making in irreducible social systems before deciding on appropriate tools and methods for action. Answering the research questions involved analyzing and synthesizing existing models of multi-ontological sense making and their accompanying worldviews, methods, techniques, and approaches. Mapping of the worldview system to the various systems domains, contexts, and states will ensure greater cognitive effectiveness and variety in context formulation, problem formulation, and action when dealing with social systems.

Research Aims and Objectives

Given the gaps and shortcomings identified in the extant research, the primary purpose of this dissertation is to present a conceptual scheme that will aid in multi-ontological sense making in social systems in order to improve our understanding of and response to complexity. The aims of this research study are:

1. **To develop new multi-ontological, conceptual systems of worldviews to understand and visualize the domains of social system functioning to enable greater cognitive effectiveness in sense making.**
2. **To identify appropriate tools and methods to utilize in different states of social systems functioning in order to improve mental effectiveness in dealing with social systems.**

To achieve these aims, the following objectives were identified:

(a) Evaluate, explore, and understand existing models and frameworks of multi-ontological sense making.

(b) Examine, explore, and understand the links among different worldviews and sense making.

(c) Investigate and understand if any system of worldviews can be defined for multi-ontological sense making.

(d) Examine, explore, and understand the links among different worldviews and management approaches, tools, and techniques for dealing with social systems.

(e) Identify an appropriate way to classify management approaches, tools, and techniques for use with each of the particular worldviews to generate contextually appropriate responses in each state of the states of social system functioning.

Research Design and Data Collection Methods

Methodologically this study drew on a qualitative meta-synthesis approach. The research design is sequential with four phases comprised of: (a) A content analysis of worldviews to develop a classification framework, (b) The classification and categorization of strategy consulting approaches to complexity in order to understand sense making and ontological mapping in social systems, (c) The design and development of theory based on a meta-synthesis of the research findings, and (d) a thought experiment to demonstrate how the theory would be utilized in practice. The research design

and methods of data collection used in this study are primarily qualitative approaches to research and inquiry.

Delineation

This study formulated theory about multi-ontological sense making in dynamic social systems and developed a framework for the classification of strategy consulting approaches, tools, and techniques to generate contextual appropriate understandings. This study did not test the effectiveness of the formulated theory in strategy consulting but did demonstrate in a thought experiment how the theory could be applied. The study did not test the effectiveness of the classified strategy consulting approaches, tools, and techniques. It did, however, evaluate whether any of these approaches is capable of dealing with the complexity of the social reality we are faced with, to either confirm or deny anecdotal evidence about the landscape of management. While multi-ontological sense making is central to the premise of this study, no evaluation or testing of the actual sense making process of individuals was conducted. Only worldviews, which have relevance to organization, organizing, and social systems, were considered in the analysis and theory-generation phases of this study.

Anticipated Contributions

This study is anticipated to make several contributions to theory in the fields of Systems Theory, Complexity Science, Leadership Theory, and Management Theory. First, this study is expected to contribute to: the body of knowledge and literature on multi-ontological sense making, our understanding of complexity and complicatedness in social systems, appropriate tools, and the role of technology for action; the body of literature on worldviews and their application and importance in management; research on leadership, management, and systems theory by guiding how best to understand, interpret, and ultimately how to respond to challenges when dealing with dynamic social systems and the manifestation of complexity and complicatedness. This study should be useful in driving a more focused discussion around dynamic social systems and how individuals, managers, leaders, and researchers ultimately respond to different types of complexity.

Conclusions

This chapter provided the background for this study. It introduced sense making in dynamic social systems and provided a brief look at pertinent literature. It also outlined the research problem, the research questions, the central aim and objectives, and the research methods used in this study. Chapter 2 reviews the literature framing the research, which has a bearing on this study.

CHAPTER 2:
LITERATURE REVIEW I: SENSE MAKING

This literature review reinforces and supports the research questions developed in Chapter 1 by (a) defining and discussing the core elements of sense making that make up the variables of interest, and (b) describing and discussing the approaches to sense making that have been developed in social systems. Shortcomings in the current state of knowledge are identified and discussed. The literature review is a methodological tool and provides the reference framework which was used to guide the research design.

Content

The content of Chapter 2, 3 and 4 is based on the review of published materials which include journal articles, books, monographs, Internet articles, and government publications. Grey literature, such as dissertations, conference proceedings, peer-reviewed abstracts, and reports are also included. Relevant in-press articles, while being mentioned is some sections of the text, were generally excluded from detailed analysis, discussion, and description.

Structure

Material is organized according to topics or themes sense making Chapter 2, philosophy Chapter 3 and worldviews Chapter 4 that are relevant to the study and research questions. The structure of the review in general moves from broader conceptual schemes to more focused areas of analysis.

Scope

The search strategy for this study was based on a framework of keywords and phrases presented in the Glossary above and derived from the research questions, possible related search terms, and variations of the search terms and of subheadings to the search terms. The full texts of all potentially relevant articles, titles, and abstracts of all papers, books, documents, government

publications, Internet publications, conference papers, and journals were then retrieved and assessed for inclusion. Texts were excluded from this review if they were not peer-reviewed, did not have an English abstract, did not address directly or indirectly the search terms, and/or if they were not primarily concerned with the impact of different concepts associated with the key words. The scope of this review was designed to map out what is currently understood about the research questions and related concepts, phenomena, and ideas.

Sense Making

Choo (1996) argued that social systems and individuals use information in three critical ways to influence a social system's capacity to expand and to adapt to their environment. First, social systems and their participants search the environment for information to enable critical decisions that commit either the social systems or the individual to action. Second is to make sense of changes in the environment. The dependencies that exist among all social systems and their environments are constantly shifting and changing and are critical to the survival of the systems. Early insights into environmental changes can guarantee competitive advantages and survival for social systems. The immediate goal of sense making, he argued, is to understand the environment in order to ensure that adaptations succeed in the dynamic and complicated environment. For Aaltonen (2007) this is important because in dynamic, complicated, and changing strategic landscapes, developments are continually disrupted by non-linear environmental occurrences, consequently turning best practices into outdated methods overnight. While best practices are designed to preserve an organization's future best practices, in today's world they often create risk by impeding renewal, innovation, and creativity. In this type of environment, he argued, sense making becomes more critical to organizational survival and prosperity than decision making or any other process because of the way sense making is intertwined with decisions, actions, and judgments. As Aaltonen (2007) argued, the vital activity today, which is often overlooked and forgotten, is the simple fact of first considering the basic questions and issues at stake.

Third, Choo (1996) said that another critical way that social systems and individuals use information is for generating new knowledge and innovation through learning. As Maitlis and Christianson (2014) determined, sense making at an individual and organizational level is thus often triggered by changes, events, and situations that give rise to new situations that are ambiguous and uncertain but that are critical to social systems' functioning in today's environments.

Process of Sense Making

According to Weick et al. (2005), sense making is a cognitive process involving the ongoing development of plausible images that rationalize what people are doing. As Choo (2002) discussed, sense making occurs when changes occur in the environment creating a discontinuity in the flow of experience. These discontinuities create the data from which meaningful sense has to be made by human participants in a social system (p. 80). For Weick (1995), sense making has four connected sequences; *environmental change*, *enactment*, *selection*, and *retention*. When anomalies occur in the *environment*, according to Choo (1996), the human participants in a social system try to understand and comprehend the changes that have occurred and what the implications are for the system. Choo (2002) said that in *enactment*, people actively build the environments of which they are a part, by arranging, categorizing, and sorting their experiences and thus filtering the information from their environment to prepare the data for interpretation. Choo (1996) argued that in trying to comprehend the meaning of change, people inventively take actions to categorize a subset of the data for closer evaluation. In so doing, they enact their environment as they dissect, rearrange, order, categorize, filter, and destroy many of the features of their environment in order to produce data from which meaning and actions can be generated.

Choo (1996) further posited that in the *selection* process, people attempt to attribute meanings to this data by overlaying past interpretations as a master template for the current experience. Selection, he said, involves overlaying various reality maps and structures on the generated data in an attempt to reduce ambiguity. Thus, selection builds the reality map that provides explanations for

cause-and-effect linkages, which are used to interrupt social reality. Choo (1996) argued that participants in a social system are more likely to use reality maps that have been proven sensible in the past for the interpretation of raw data, if they can provide a reasonable explanation of reality. He explained that the selection process of a reality map is therefore heavily influenced by history, programing, and the experience of the participant in the sense making process. Overlaying reality maps and worldviews in the selection process builds a new model or template that explains the relationships among data based on worldviews. The selection process thus serves to convert data points from the environment into some type of pattern or knowledge structure and to develop a conceptualization of a particular domain. Once selection has been undertaken, it is possible to share this understanding of the particular domain by communication with other participants in social systems.

The selection process could also conceivably be undertaken collectively in order to develop a shared understanding across social systems. A sense making framework or device would, according to the explanation above, serve to establish a knowledge structure that would allow people to develop a notion of the data and of the types of relationships among data based on the major worldviews described above. A sense making device thus serves to reduce ambiguity by suggesting models that explain data relationships. In complexity, however, signals from the environment may contain data for which no previous reality map offers any interpretations. In this state, sense making cannot reduce ambiguity and may subsequently lead to faulty sense making and action. Anecdotal evidence of these altered states can be seen in political polarizations across the globe, diverse business strategies of differing companies, and the diversity of global stock-trading practices.

Last, for Choo (2002), *retention* of the products of successful sense making is accomplished by storing both meanings and templates as master templates, so that they can be retrieved for future acts of sense making. Choo's (2002) explanation makes it clear that worldviews are applied in the selection process of sense making to build a reality map of social systems to which data is then attributed which has been filtered, categorized, and randomized for interpretation.

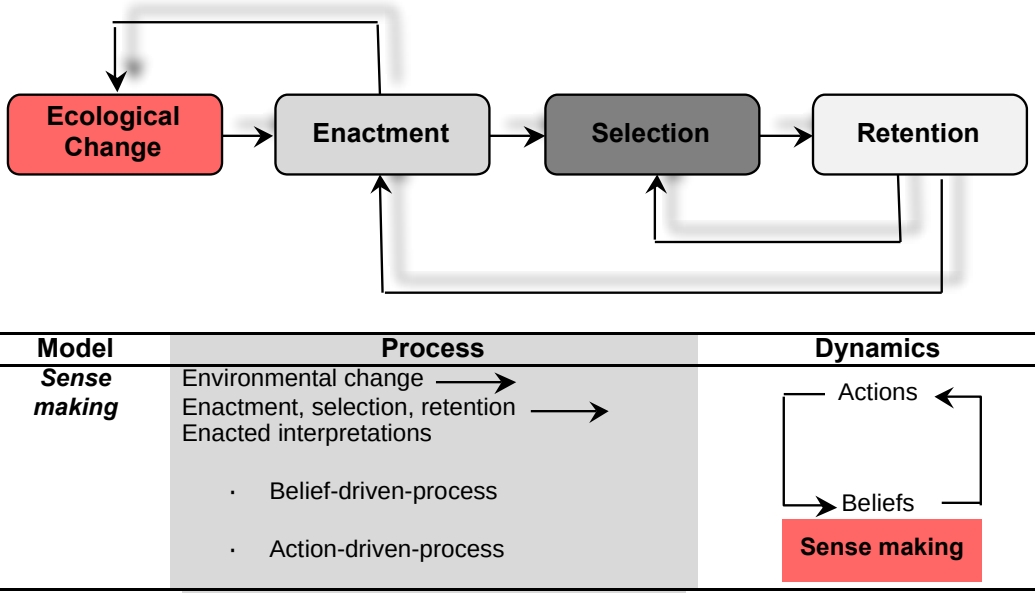
For Weick (1995) sense making in accordance with this logic is either facilitated through beliefs or actions. From the beliefs point of view, people start with a worldview or mindset that contains a clear set of beliefs about how reality works and then use this framework to arrange information into a larger structure of meaning. As Choo (2002) noted, participants in a social system may use a worldview to guide their plausible interpretations of a changing and ambiguous situation or they may debate worldviews and their relevance when their reality map conflicts with the current data about the environment.

Choo (2002) further described the action viewpoint that suggests that humans may also start with action rather than beliefs and then develop structures of meaning around these actions, altering the structure as they go to give significance to their actions. From this perspective humans either justify the actions which they may have taken or they create meaning to explain the actions which they have taken which can also involve the use of worldviews. Figure 1.3 describes the sense making process and the role of actions and beliefs in sense making.

Figure 1.3

The Four-Phased Sense Making Process

Source: Adapted from Choo (1996), "The Knowing Organization: How



Organizations Use Information to Construct Meaning, Create Knowledge and Make Decisions" and Choo (2002), The Strategic Management of Intellectual Capital and Organizational Knowledg*e.*

While the conception of sense making developed in Figure 1.3 builds a linear view of the process, it is not actually linear but rather the product of the interplay among multiple experiences, reflections, and patterns which lead to cognition. Despite this, as Weick et al. (2005) stated, sense making should be viewed as a process which is ongoing, instrumental, subtle, swift, social, and easily taken for granted. Sense making, as LeMaster (2017) noted, is central to the determination of human behavior within organizations due to its role "as the site where meanings materialize that inform and constrain identity and action" (p. 58). Weick et al. (2005) earlier noted that this is important because it places the process of sense making on an equal level of importance with language and communication in social systems.

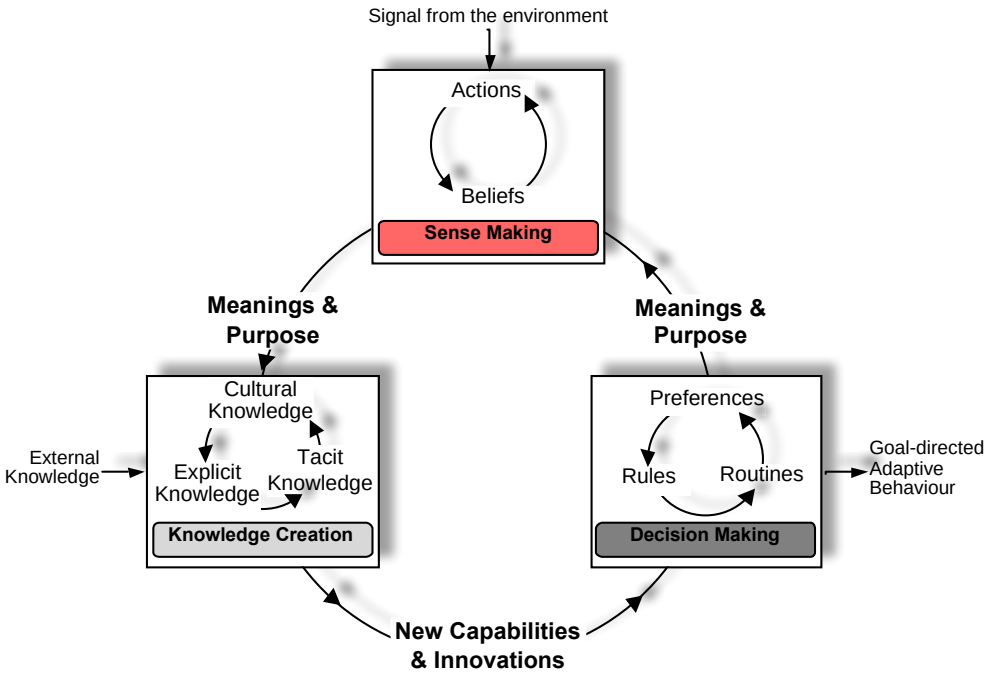
Sense Making, Knowledge Creation, and Decision Making

For Aaltonen (2007), sense making is one of the most important cognitive frameworks because of its influence on essential human and organizational processes such as decision making, knowledge

creation, and strategy. Choo (2002), recognized the importance of sense making and described information as existing in a continual state of flow between sense making, knowledge creation, and decision-making in both individuals and organizations. He demonstrated that the outflow of information from one process becomes the inflow of information to the next process in a circular manner. The process as described by Choo (2002) is depicted in Figure 1.4.

Figure 1.4

Knowledge Cycle



Source: Adapted from Choo (2002) "Sensemaking, Knowledge Creation, and Decision Making." The Strategic Management of Intellectual Capital and Organizational Knowledge, 79-88.

Choo (2002) said that the process of sense making produces the meanings and purposes which assist individuals and social systems, such as organizations, to explain the observed reality with a framework that identifies what is appropriate and salient. He argued that while people may not agree on the content of any particular issue, collective sense making does bring agreement and focus as to what the salient issues are. Sense making accordingly establishes the frameworks for meanings and purpose which guide humans in social systems to judge utility and appropriateness through dialogue, choice, and action. For Choo (2002), when signals from the environment allow multiple interpretations, sense making reduces ambiguity by helping humans to select plausible explanations. When signals from the environment are missing, sense making reduces ambiguity by providing the assumptions humans use to fill in the gaps in the flow of information. Sense making is a continuous process, he said,

as humans constantly need to compare the meanings generated by sense making against the environment to ensure continued validity.

Choo (2002) showed that when people or social systems find gaps in existing knowledge which hinder progress, knowledge creation is initiated within the parameters established by sense making. The means and purpose of sense making, together with any new knowledge from this process, then converge on decision making which is the final activity leading to action in social systems. The importance of Choo's (2002) model is that it identified sense making as the primary activity which leads to knowledge creation, decision making, and ultimately actions in social systems. This perspective is in agreement with Weick et al. (2005) that sense making is the primary process that initiates a sequence of events that subsequently lead to actions and behavior in social systems.

Prospective and Retrospective Sense Making

Choo (1996) argued that one aspect of the model in Figure 1.4 is that it allows for action to occur *before* meaning is developed for these actions. This aspect of sense making questions the common premise that cognition and planning precede action in social systems, when, in reality, actions are sometimes taken and then justified with a plan. For Weick et al. (2005,) sense making is primarily retrospective. As Choo (2002) pointed out, Weick's conception of sense making implied that planning can only be understood as "*thinking in the future tense*" (p. 81). He noted that it is not the actions of the plan that give coherence to the actions which are performed. A plan is considered, Choo (2002) argued, to provide utility not because it maps out future actions but because it provides a blueprint of the past actions, which were performed to complete the as yet unstated plan. Choo (2002) asserted that actions are first performed and then made sensible so that that they give the illusion of being under the control of the plan, thus agreeing with Weick (1979), who described planning as

> a set of actions that are . . . interpreted after the fact rather than . . . planned before the fact. Behavior isn't goal directed, it's goal-interpreted . . . the effect precedes the cause,

> the response precedes the stimulus, the output precedes the input. Effects, responses, and outputs are pretexts to search backward and discover plausible events that could have produced them . . . the project is made sensible when a history is imputed to it, but the history is constructed after the project is concluded, not before. (Weick, 1979, p. 195)

Choo (2002) further said that retrospective sense making is about uncovering and choosing the activities and outcomes which have worked well for organizations and individuals in the past. While Weick (1979) and Weick et al. (2005) emphasized the retrospective aspect of sense making, Choo (2002), Rosness, Haavik, and Evjemo (2015) and Patvardhan, Gioia, Maitlis, Obstfeld, Ravasi and Sutcliffe (2018) emphasized the role of *prospective* sense making. Patvardhan et al. (2018) described prospective sense making as "envisioning a possible future and then constructing a plausible path back to the present in order to make sense of it" (Patvardhan et al. 2018, p. 9).

Prospective sense making, as the name implies, is primarily directed at making sense of events, which *may or may not* occur in the future. The explicit specification of "*primarily,"* as discussed by Rosness et al. (2015), is necessary because even though the lens of the individual or the social system collectively is focused on the future, past experience will always play a role in sense making of the future, and thus we also engage in retrospective sense making in the process. Choo (2002) said, prospective sense making is structured around creating meaningful possibilities for future events. He stated that it essentially entails establishing a structure for some future imagined event, even though this event will inevitably be ill defined. For Rosness, et al. (2015), prospective sense making has the following features:

1. Prospective sense making is primarily concerned with the competent handling of future events in the near, intermediate, or future state and not in the past.
2. Prospective sense making can occur before environmental changes which trigger retrospective sense making.

3. Prospective sense making uses information from verbal and non-verbal interactions as well as observations of actions and inputs from technology.
4. Prospective sense making can be open to differing causal maps and interpretation of future states and allows for ambiguity and uncertainty.
5. The outcome of prospective sense making is mental preparedness to handle possible future events with improved actions, communication, and coordination (Rosness et al. 2015, p. 58).

Patvardhan et al. (2018) asserted that the distinguishing features of prospective sense making are the ability to question basic assumptions and to innovate new options. This capability is referred to as "*future-perfect-thinking*" by Weick (1979, p. 195). According to Patvardhan et al. (2018), this involves generating counterfactuals and alternatives to current reality maps by synthesizing incompatible and paradoxical elements into the present context.

As Rosness, et al. (2015) indicated, prospective sense making is concerned with anticipation, but despite this, it is not anticipation of how the future *will* develop and unfold but rather the imagining or unimagining of possibilities that *could* occur. They argued that it serves to elaborate on possible future states that may or may not occur and thus to make a distinction of the unexpected. It is aimed at defining the border of safe operations, which is usually only identifiable by retrospective sense making. Rosness, et al. (2015) described it as the border between the domain of knowing and that which cannot be known which is operationalized through prospective sense making. This border is ultimately articulated by developing potential futures in prospective sense making. Sense making in strategy for complex situations would require *both* retrospective sense making -- discovering what worked -- as well as prospective sense making to define where the quasi zone of the unexpected begins to be mentally prepared for the unexpected.

Technology and Sense Making

Technology, as Rosness et al. (2015) explained, is significant because it has the power to generate shared representations which can be used in the process of sense making both at an individual and organizational level. As they pointed out, many of these dynamic representations, which are generated by technology, are available in real time, and are shared and made intelligible by many of the actors within a social system. In general, actors use the shared representations of technology to update their conceptions and thus to make sense of what has happened and what could potentially happen. According to Lycett (2013) this datafication of social systems has led to the belief that semantic or causal analysis is not required, as the technology now has the means to identify trends and relationships in organizational, consumer, business, political, environmental, and economic data about the world to name only a few. This orderable worldview and mindset, as he explained it, leads us down a dangerous road, as datafication of the world forces social systems participants to view data mathematically before establishing the context for the data, thus inhibiting sense making. When data is captured mathematically and automatically by software and then codified, it is fundamentally an act of abstraction, as some logic needs to be applied to what is considered important and what is not. The core point, Lycett (2013) explained, is that while data implies and refers to frames of reference, the frames of reference, when talking about information technology, are pre-determined by the software that selects and connects the data. In fixing the frame of reference through a process of formalization, knowledge about social systems is decontextualized and fixed, when, he argued, they are in fact in motion. Thus, in order to make sense of data, they would have to be re-contextualized upon use. He continued by affirming that the problem with big data is that the meaning originally imposed on big data is constrained, as most sets of big data are either explicitly or implicitly based on abstractions of the world and then surrounded by a frame consisted of a pre-selected reality map and frame of reference that were used to contextualize the data. Big data, then, inhibits sense making.

According to Lycett (2013) the second problematic area for technology and sense making emerges around the use of algorithms. Algorithms typically look for pattern recognition, trends, and relationships at the point of data capture, evaluating the volume, velocity, variety, and frequency of the data. As Dietterich and Kong (1995) and Lee (2018) pointed out, algorithms are producers that facilitate automated learning and artificial intelligence and facilitate and undertake a series of unambiguous instructions. This, Lycett (2013) argued, is important because they do not only build meaning from the data about the world but also are shaping the world that humans live in. Algorithms are, for example, conducting matching between adds and content in a totally blind process of semantic matching without any knowledge about the content, contexts, or the parties involved. Dietterich and Kong (1995) and Lee (2018) argued that this is problematic because every algorithm by definition needs to imply biases on any data set to move beyond generalizations from the training data. Algorithms by design impose a specific worldview on sense making which is constrained by the limitations of their design and the training data on which they have been trained. A further complication, Lycett (2013) argued, is the emergent effect of algorithms working in concert or competing with one another about which deep understanding is yet to be developed.

While technology is undoubtedly an enabler in social systems, the datafication of the world is unavoidably also obscuring, distorting, and modifying many of the features of the social world. The heritage, history, design, and logic of technology is, by its very nature, channeling human participants in social systems into certain inferences, worldviews, and ultimately actions and outcomes. While it is clear that datafication has provided a steady stream of benefits to social systems by creating real value, new insights, innovation, and business opportunities, it should also be noted that it could have unintended consequences as argued by Lycett (2013). Technology and its proliferation, while having the power to generate shared representations of the social world, instead builds a limited, one-dimensional shared view of the social world and propagates an overly static, positivistic, and mathematical understanding of the world. The flood of data produced by the proliferation of technology

further creates an overload of information, which may obscure certain features of social systems. While the benefits of technology are clear and tangible, it would be risky to ignore its detrimental effects on certain aspects of sense making both from a prospective and retrospective view.

Sense Making Failures

Aaltonen (2007) argued that contemporary management theory does not allow for the idea of uncertainty to persist, and instead it is myopically focused on accuracy, certainty, knowing, and conflict avoidance through consensus. He stated that this is driven by the accepted logic that uncertainty, not knowing, and conflict call into question the very competency of managers, leaders, and experts in social systems and their level of control. In real life, social systems are messy and unpredictable rather than orderly and controlled, making the accurate identification of any single identifiable problem almost impossible. The biggest problem Aaltonen identified is actually making sense of the unfolding complexity which humans, managers, leaders, and experts are presented with in social systems. Sense making failures, Aaltonen (2007) said, occur when overly simplistic models of reality are applied to complexity, effectively stifling the ability of humans, managers, leaders and experts to act efficiently and effectively to identify real solutions for real world problems. He asserted that when managers and leaders follow the vast majority of management techniques, they unwittingly engage in a search for absolute answers. This search for absolute answers, he asserted, leads to single-ontological sense making and a belief in an ordered reality.

Single-ontological sense making for Snowden (2005) is the application of a single ontology to a situation, change, or event in the selection process of sense making. Meaning is thus attributed to data by overlaying a single ontological template to interpret the current experience. Choo (1996) argued that participants in a social system are more likely to use established, previously successful reality maps, for the interpretation of raw data, if they can provide a reasonable explanation of reality. He explained that the selection process of a reality map is heavily influenced by history, programming, and the experience of the participant in the sense making process. For Snowden (2002), complex systems such as social

systems are always retrospectively coherent, meaning that the current status of the systems seems as though it is based on causal, ordered logic, but only when viewed retrospectively. The concept of retrospective causality, he argued, implies that all patterns in social systems appear logically ordered and causal after the fact, but in reality, they are just one of the many occurrences which could have emerged, each of which would have been equally logical, ordered, and causal.

Combining the ideas of retrospective causality with the power of technology and with the fact that the vast majority of management approaches are based on an ordered reality (Aaltonen, 2007), it then becomes easy to understand how single-ontology sense making may prevail in the vast majority of individuals and organizations. Clearly, if complexity is viewed retrospectively, framed as causal, and ordered with a single-dimensional view of complexity driven by technology, then it is inevitable that most sense making processes would default to a single-ontology sense making approach with an overly positivist, mechanistic, causal, and mathematical explanation of social systems. While this seems logical, there is no research to substantiate this position, only anecdotal evidence. This position can best be described by the many obvious failures in sense making which have been cited in recent history; for example, the recent sub-prime financial crisis, errors in election forecast polls, the engineering failures in the Boeing 737 Max program, and the logistics failures in the distribution of the Covid-19 vaccine. The point, Aaltonen (2007) asserted, is not that any ontology is superior to another but rather that we cannot assume only an ordered ontology or an ontology of complexity and that we must be flexible, adapt, and adopt multi-ontological approaches to sense making if we want to address the complexities of social systems.

Sense Making Summarized

Sense making as Weick, Sutcliffe, and Obstfeld (2005) described it, is the act of rationalizing our reality with our assumptions about that reality. Sense making not only builds the context for both action and insight, but also implies a choice between ontological presumptions about reality which serve as our guide to insight and action.

Sense making as a critical process in comprehending, understanding, and responding to complexity in the world around us builds reality maps of what is happening in the here-and-now which are used both to imagine hypothetical alternatives in prospective sense making and to understand, by retrospective sense making, current and past events. Sense making at best should be thought of as an incomplete representation of the past or hypothetical future alternatives, constrained by the experience and knowledge of the individual or groups of individuals engaged in sense making. I propose that by using worldviews to build reality maps, individuals and collectives who are engaged in sense making can develop a practical map of unfolding events, containing only what the individual or collective needs to grasp and navigate the unfolding situation.

Sense making's key components are 1) inputs from the environment and 2) worldviews. These provide the reality maps from past experience which constitute our beliefs and assumptions about reality. The results of the sense making process are continually tested against incoming sensory inputs from the environment, where any ambiguity is resolved by reinitiating the sense making process. As Choo (2002) showed, this process is intimately linked with decision-making and action by individuals and collectives in social systems. Weick et al. (2005) argued that this is important because it places the process of sense making on an equal level of importance with language and communication in social systems.

Despite the importance of sense making, it has received very limited consideration in formalized management thinking. Aaltonen (2007) argued that this is probably due to the predisposition of modern management's thinking about and acceptance of the concepts of certainty and control in social systems. He pointed out that social systems are in fact messy, complex, and complicated, and therefore, to understand complexity we need to relinquish some deeply held beliefs. Making sense of our complex and complicated reality is one of the greatest strategic challenges of our time, requiring the abandonment of the core principles of management: control, logic, certainty, planning, data, processes, and consistency. The point, as Aaltonen (2007) and Snowden (2005) argued, is not that any ontology is

superior to another but rather that we cannot assume only an ordered ontology or an ontology of the complex if we want to address the complexities of today's social systems.

Despite this realization, it is clear that technology is propagating a widely shared view of a data-driven and logic-centered approach to sense making. While technology can model and create a view of an unordered reality, by its very design it uses an ordered ontology to build an unordered representation of reality. This is evidenced by the way agent-based modes are designed, how neural networks work, how algorithms are designed for artificial intelligence, and by how information and knowledge is ordered in the semantic web. Technology has also been shown to provide retrospective insights, adopting a primarily retrospective approach to sense making. The point, as Aaltonen (2007) and Snowden (2005) argued, is not that any ontology is superior to another but rather that we cannot assume only an ordered ontology or an ontology of the complex if we want to address the complexities of today's social systems.

Despite this, it has been shown that a single ontological approach to sense making dominates management thinking and practice, thereby leading to reoccurring failures. To truly make sense of reality and to address the strategic problems faced by social systems today, we need to abandon some of the tenets of management thinking and reevaluate sense making as the most basic and important process for dealing with complexity in a rapidly evolving world.

Multi-Ontological Sense Making

Snowden (2005) stated that no one ontological method should be considered to have universal application to all situations when dealing with the true nature of the world, which is multifaceted and complex. According to him, a multi-ontological approach to sense making leads to achieving the requisite level of diversity in our interaction with reality, thereby enabling us to sense both weak and strong signals and avoid the pitfalls of ingrained pattern recognition. A sense making framework, device, or approach establishes a knowledge structure that allows humans to develop a notion of data and the types of relationships between data, based on the major worldviews described above. In the

next section, we discuss the primary frameworks, devices, and approaches of multi-ontological sense making which aim to address the complexities of reality by responding to reality with a higher level of requisite diversity. These include the Levels of Analysis approach, the Hierarchy of Systems approach, the Use and Purpose of Systems Approach, and the Cynefin Framework.

Levels of Analysis Approach

One of the most common and elementary approaches to multi ontological sense making is the *levels of analysis* approach. Scott and Davis (2015) described this approach as bisecting social reality by creating a hierarchy based on the dependent variables of analysis. The hierarchy bisects social reality by distinguishing between the object of the theoretical analysis and thus by whether primary attention is given to the behavior of individuals, the social systems, or to the network of social systems. The basic levels of analysis at which social reality can be bisected according to the levels of analysis approach are described below:

1. *Social* psychological level: Scott and Davis (2015) explained that the social psychological level proposes that the first distinction that should made is the behavior of individuals and the interpersonal relations involving individual participants within a social system.
2. *Social systems* level: Next, they proposed are the structural features and processes that characterize social systems, their subdivisions and units.
3. *Ecological* level: finally, the ecological level, which focuses on the characteristics or actions of social systems when viewed as collective entities or actors operating in larger networks of relations. At this level of analysis, the primary concerns are the relations among specific social systems, classes of social systems, and the environment.

The levels of analysis approach to multi ontological sense making described above follows a reductionist/positivist/modernist model by describing social reality as a linear chain that can be deconstructed into individual components. The model is multi-ontological in the sense that it proposes that positivist, modernist, interruptive worldviews could be used to make sense of the social

psychological level of analysis while positivist and modernist worldviews should be used to make sense of the social systems and ecological level of analysis.

While the levels of analysis approach to multi-ontological sense making appears on face value to offer some utility by providing a multi-ontological approach to improve sense making in social systems, it does have some significant detractors. For Scott and Davis (2015), distinguishing among these three levels of analysis is somewhat arbitrary, as they felt the complexity of social reality can only be captured by a more refined bisecting or hierarchy of social reality. For them the levels of analysis approach should be seen as a useful tool for establishing a rough guide of how we can make sense of social systems at differing levels. For Kozlowski and Klein (2000) the problem is more significant, as they stated that neither the social, psychological, or ecological levels of analysis in isolation can account for and make sense of the complexity of an entire social system. The systems level and ecological level of analysis ignore behavior, perceptions, and interactions which manifest as higher-level phenomena. Conversely, the social psychological level of analysis neglects context, which limits differences that lead to group responses. For Kozlowski and Klein (2000), the levels of analysis approach to multi ontological sense making fails to provide a truly accurate reality map and accordingly has utility for only specific processes or situations.

The levels of analysis approach to multi-ontological sense making clearly follows a reductionist predisposition for bisecting and segregating social reality into smaller sub components. Although allowing for multiple worldviews in sense making in social systems, the language employed is primarily based on a positivist and modernist predisposition of social reality, thus building an ordered view of reality. As Kozlowski and Klein (2000) indicated, the primary concern with this approach to sense making in social systems is that it fails to deal with wholeness and emergent systems properties of social systems by dissecting and dividing social reality into smaller subcomponents, which are seen as additive to constructing social reality. The levels of analysis approach does not consider how technology can best be utilized to aid in sense making in an increasingly complex and complicated

social reality. Further, this approach does not suggest which method of strategic sense making may be useful at the differing levels of analysis or what tactical tools, methods, and techniques should be utilized within the differing levels of analysis.

The levels of analysis approach to sense making does not define how different social systems states--namely complexity, chaos, and disorder--must be considered in sense making. Rather, it proposes a view that as we move upwards from the individual, so complexity scales proportionally to the social system's size, building a complete, ordered view of reality. This simplistic approach to sense making primarily builds a view of structural complicatedness and does not consider sense making of different system states and an unordered reality and thus does not explain the dynamic aspects of the complex. It rather proposes a view that all systems are ordered and that complicatedness is the dominant characteristic of social systems.

Hierarchy of Systems

Kenneth Boulding, the American economist, developed the hierarchy of systems which establishes a hierarchy of complexity at differing levels of theoretical discourse for multi-ontological sense making. Boulding (1956) described the hierarchy of systems as consisting of nine levels of theoretical discourse, ordering systems from their simplest to their most complicated forms for sense making. The hierarchy of systems is briefly summarized in the Table 1.1:

Table 1.1

Hierarchy of Systems

Level	Descriptions & Examples	Theory & Models
1. Static Structures	The geography and anatomy of the universe: the patterns of electrons around a nucleus, the pattern of atoms in molecular formula, the arrangement of atoms in a crystal, the anatomy of the gene	E.g., structural formulas of chemistry; crystallography; anatomical descriptions

2. Clock Works	The solar system, or simple machines such as the lever and the pulley, even quite complicated machines like steam engines and dynamos fall mostly under this category Clocks, conventional machines in general, solar systems	Conventional physics such as the laws of mechanics (Newtonian and Einsteinian) and others **(Mechanistic worldview)**
3. Control Mechanisms	Control Mechanisms or Cybernetic Systems: the system will move to the maintenance of any given equilibrium, within limits. Thermostat, servo mechanism, homeostatic mechanism in organisms.	Cybernetics; feedback and information theory **(Cybernetic worldview)**
4. Open Systems	Open systems or self-maintaining structures. This is the level at which life begins to differentiate itself from not life. Flame, cells, and organisms in general.	(a) Expansion of physical theory to systems maintaining themselves (metabolism) (b) Information storage in genetic code (DNA) **(Open systems worldview)**
5. Lower Organisms	The outstanding characteristics of these systems (studied by botanists) are first, a division of labor with differentiated and mutually dependent parts (roots, leaves, seeds, etc.) and second a sharp differentiation between the genotype and the phenotype associated with the phenomena of equifinal or "*blueprinted*" growth. Plant-like organisms, germ, track and soma.	**(Organismic worldview)**
6. Animals	Level characterized by increasing mobility, teleological behavior, and self-awareness, with the development of specialized information receptors (eyes, ears, etc.), leading to an enormous increase in the intake of information. Learning and the beginnings of consciousness.	Beginnings in automata theory (S-R relations), feedback (regulatory phenomena), autonomous behavior (relaxation oscillations), etc. **(Organismic worldview)**
7. Human	In addition to all, or nearly all, of the characteristics of animal systems, man possesses self-consciousness, which is something different from mere awareness. Symbolism, past and future, self and world, self-awareness, etc., as consequence; communication by language, etc.	Incipient theory of symbolism **(Social systems worldview)**
8. Socio-cultural Systems	The unit of such a system is not perhaps the person but the "*role*" – that part of the person which is concerned with the organization or situation in question. Social organizations might be defined as a set of roles tied tighter with channels of communication. Populations of organisms (humans included); symbol-determined communities (cultures) in man only.	Statistical and dynamic laws in population dynamics, sociology, economics, possibly history and theories of cultural systems. **(Socio technical system worldview)**
9. Transcendental	The ultimate and absolutes and inescapable unknowables that also exhibit systematic structure and relationship. Language, logic, mathematics, sciences, arts, morals, etc.	Algorithms of symbols (e.g., mathematics, grammar); 'rules of the game' such as in visual, arts, music, etc.

Source: Adapted from Boulding, K., (1956) "General Systems Theory—The Skeleton of Science," Management Science, 2(3), 197-208.

The hierarchy of systems as an approach for multi-ontological sense making is strongly linked with the core ideas of modernism. The approach is hierarchal and seeks to establish a grand narrative of order to explain all of reality. The approach is multi-ontological in the sense that it allows for a number of modernist worldviews while also allowing for the inclusion of any worldview, which could be systemically explained in an ordered view of reality. Scott and Davis (2015) asserted that Boulding's hierarchy of systems emphasizes the great range and variety of systems that can be found and identified in reality. Levels 1 to 3 represent physical systems, Levels 4 to 6 biological systems, levels 8 and 9 human and sociological systems. According to Scott and Davis (2015) progressing from level 1 to 8, each successive level of systems becomes progressively more complicated, more loosely coupled more dependent on information flows, more capable of self-maintenance and regeneration, more amenable to growth and change, and progressively more open to its environment.

Boulding (1956) explained that the hierarchy of systems implies that each level of systems exhibits its own set of unique characteristics while also incorporating some of the characteristics of lower levels. For Boulding (1956) the differing levels of the hierarchy of systems are therefore not mutually exclusive. A social system, as Scott and Davis (2015) argued, could conceivably be analyzed as a framework, a clockwork, or a cybernetic system all the way up to level 8, the level which encapsulates and captures the most complex and the higher-level processes occurring within social systems. Hatch and Cunliffe (2006), in accordance with the hierarchy view of the world, argued that if you make sense of social systems at a lower level on the hierarchy than where they actually occur, you will invariably discard and be blinded to the uniqueness that is manifested in higher-level systems. Boulding concluded that due to the summative nature of higher-level systems that incorporate primary features and characteristics of lower-level systems, valuable insights, information, and knowledge could be gained by applying lower-level systems to higher-level phenomena of interest (Boulding, 1956, p.

208). Scott and Davis (2015) further posited that level nine of Boulding's hierarchy also suggests that this multi-ontological sense making approach is open to new possibilities not yet perceived, imagined, or envisioned when it was created.

The hierarchy of systems develops a much more refined approach to multi-ontological sense making than the levels of analysis approach. The hierarchy of systems approach is modernist in its orientation, and the narrative that it develops does allow for the utilization of any worldview in sense making as long as it can be systemically explained and is ordered in its understanding of reality. It builds a linear, hierarchical, and ordered view of reality, viewing complexity as a function of system scale and system (singular) size. Rather than emphasizing both the complex dynamism and complicated structure of social systems, it is primarily focused on emphasizing the complicated nature of social reality. In opposition to the levels of analysis approach, the hierarchy of systems outlines which strategic methods may be useful at the differing levels of analysis which might aid in identifying what tactical tools, methods, and techniques should be utilized therein. While the impact of technology on social systems is recognized in the hierarchy of systems, the framework does not consider how technology can best be utilized to aid in sense making in an increasingly complex and complicated social reality. Neither the hierarchy of systems nor the levels of analysis approach defines how different social systems states (complex, chaos, or disorder) must be considered in sense making. The hierarchy of systems approach proposes a view that as we move upwards from a mechanistic view so complicatedness scales proportionally to social systems size, building an ordered view of reality. Accordingly this approach to sense making primarily builds a view of structural complexity and complicatedness similar to the level of analysis view and does not consider the possibility of an unordered dynamic reality.

Use and Purpose of Systems Approach

Ackoff (1999), believed that sense making is best accomplished not by looking at the common characteristics such as size, location, function, or complexity of any system but rather by evaluating a

system in terms of its use and purpose. He determined that the system's ability to make choices is the basis for determining if a system is purposeful. He explained that choice by itself, however, is not necessarily sufficient for establishing whether or not a system is purposeful. Any system that has the means to act differently in different environments has choice, but if the system can produce only the same outcome, it is not purposeful but merely goal seeking. According to this logic, in *Re-Creating the Corporation: A Design of Organizations for the 21st Century*, Ackoff (1999) distinguishes four types of systems, which are described in Table 1.2.

Table 1.2

Types of Systems and Parts and Models

Types of systems	Parts	Models
1. Deterministic Systems These systems in isolation have no purpose. They may contain subsystems but these are also not purposeful and are purely deterministic. They are best described by the mechanistic worldview and can be open or closed to the environment. Ackoff (1999) argued that the mechanistic world does not only apply to mechanisms but also to life, as he explained that plants are also mechanistic. According to his explanation, parts of plants cannot display choice and therefore plants are not purposeful. The definition of life is thus not related to purposefulness. Ackoff asserted that Deterministic systems are best encapsulated by a Newtonian view of the universe. Typical examples include temperature-regulating heating systems, calculators, plants, and motorbikes.	Not purposeful	Not purposeful (**Mechanistic worldview**)
2. Animated Systems Animated systems are simply systems which have purpose but do not consist of individual parts that have purpose. For Ackoff (1999) these systems include humans and animals. He explained that all animate systems are organisms but not all organisms are necessarily animate systems. Living systems as he described them are all self-regulating and self-organizing. All animate systems are accordingly also self-regulating and self-organizing but not all living systems are necessarily animate systems. For Ackoff (1999) the distinction comes down to purposefulness, as survival can be goal-seeking for plants while it is purposeful in animals because of choice.	Not purposeful	Purposeful (**Organismic worldview**)
3. Social Systems Ackoff (1999) determined that social systems differ fundamentally from other systems because the systems themselves are purposeful while also consisting of purposeful parts, animate systems, and deterministic systems. These social systems themselves are normally	Purposeful	Purposeful (**Social Systems worldview**)

part of larger social systems, which contain other social systems. Examples include corporations, governments, societies, and universities. These entities clearly all have a purpose and are made up of other purposeful components.		
4. Ecological systems Ecological systems, as outlined by Ackoff (1999), consist of interacting mechanistic, organismic, and social systems. In opposition to animate and social systems, they have no purpose of their own. Ecological systems serve the purpose of the organism or social systems; their constituent parts have only the function of supporting their survival. Ecological systems, similar to mechanistic systems, have no choice and their effects are deterministic.	Purposeful	Not purposeful (**Ecological systems worldview**)

Source: Adapted from: Ackoff, R. (1999), Recreating the Corporation: A Design of Organizations for the 21st Century. Oxford University Press, USA.

For Ackoff (1999), the effectiveness of the sense making process is entirely dependent on the degree of fit to the reality map, which is used to describe that reality. Mechanistic and organismic reality maps can be used to map social systems with useful outcomes, but, he argued, they would in all probability produce only short-term results due to the limited perspective which they build of reality. Ackoff (1999), congruent with this logic, argued that any mismatch in the sense making process produces less than optimal results because critical aspects of the systems are not considered when implementing strategic methodologies and tactical tools and techniques.

Ackoff's approach to sense making differs fundamentally from the levels of analysis and other types of systems approaches by adopting a pragmatic stance to sense making in opposition to earlier modernist conceptions. The focus of his approach is purely on utility and is very practically orientated. However, his types of systems models still build a hierarchal view of reality, emphasizing the structural complexity and complicatedness of the social world. Ackoff further identified differing reality maps and worldviews for making sense of each type of system such as the levels of analysis and hierarchy of systems approaches, but Ackoff's approach does not define how different social systems states (complex, chaos, and disorder) must be considered in sense making. It rather proposes a view that as we move upwards from deterministic systems, so complicatedness will scale proportionally to social

systems size, building an ordered view of reality. The result is a view of complexity similar to the level of analysis and hierarchy of systems, neither of which considers how technology can best be utilized to aid in sense making. The biggest contribution of Akoff's systems approach to sense making is the pragmatic orientation of the approach and the identification of purpose as an important distinguishing factor in the sense making process. Another contribution of the Ackoff approach is its democratizing stance. By emphasizing the limited view of any single approach, Ackoff invariably invokes and also implies the limitations of any single individual in sense making, thereby stressing the importance of multiple stakeholders and agents. Ackoff (1999) developed the idea that requisite minds that engage in shared sense making have a higher probability of being able to deal with complexity, shifting agency from the individual to the organization as a whole in the sense making process.

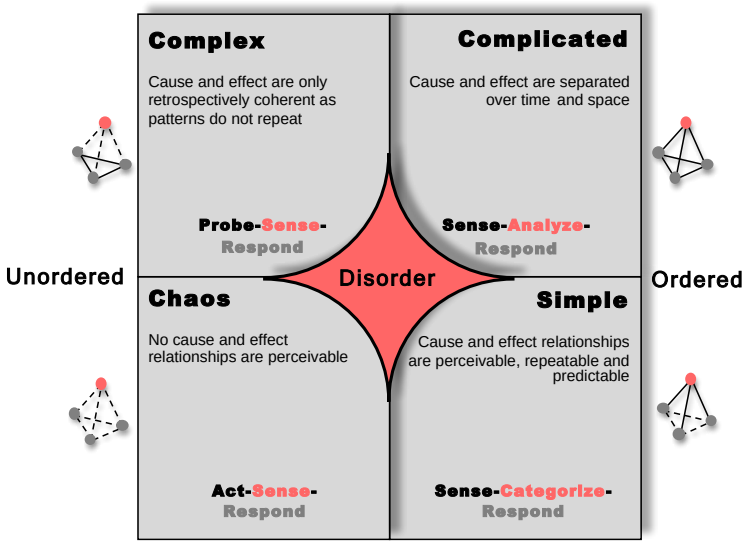
Cynefin Framework

As was discussed in Chapter 1, Kurtz and Snowden's (2003) and *Snowden and Boone (2007)* Cynefin framework distinguishes between ontological domains based on the description of causality, and identifies five domains in which social systems can function: the simple domain (also referred to as obvious), the complicated, complex, chaotic, and disordered.

Figure 1.5

Cynefin Framework with Causal Models

Source: Adapted from Elford (2012), "A Multi-Ontology View of Ergonomics: Applying the Cynefin Framework to Improve Theory and Practice. Work, 41(Supplement 1), 812-817.



Cynefin as a sense making framework identifies five different, but not entirely distinct, contexts for sense making. French (2015) said that these contexts should not be conceived of as providing a hard distinction or boundaries but should rather be considered as soft boundaries in which a context lying close to one of the boundaries could conceivably draw from both sides of the divide. As he explained, when a context is in the chaotic state, individuals and collectives engaged in sense making are unfamiliar with every aspect of the environment and find it difficult to identify any meaningful patterns, relationships, entities, events, or behaviors. French (2015) argued that individuals engaged in sense making in this context can only engage in probative behavior in continual cycles of sense making to see what happens until the system dissipates some energy, thereby leading to the emergence of some entities and behaviors that can be recognized. Once this has occurred, the context has then shifted to the complex context. As French (2015) described the complex context, we can recognize some causes and potential effects from sense making, but it is impossible to attribute any confidence in these outcomes of sense making, as the patterns in this context are constantly changing. French (2015) pointed out that we are continually engaged in the sense making cycle, and some behavior events and entities may over time appear to be more related than was earlier recognized. At this point it becomes feasible to develop some failsafe experiments to test some early suspicions, ideas, and

concepts. Over time it might be possible, through multiple failsafe experiments, to develop a causal understanding of the phenomena separated by space and time, and at this point, he argued, we would be operating in the complicated context. Over time it may even be possible to further identify all cause and effects relationships, and at this time, we would be working in the simple context. The idea of multiple failsafe experiments highlights another important aspect of the complex, which is not specifically named in the Cynefin framework, namely, *it is not possible to manage the complex.*

As Gorzeń-Mitka and Okręglicka (2014) noted, each of the contexts outlined above distinguishes itself from the adjacent context by identifying differing causal dynamics for each context. The Cynefin framework accordingly assists individuals and groups engaged in the process of sense making in identifying different types of causality and resisting the tendencies for humans to engage in single ontological sense making and therefore develop either linear models or complex adaptive sense making models. According to Gorzeń-Mitka and Okręglicka (2014), the Cynefin framework, in addition to describing causal dynamics and reality maps for different contexts in sense making, also outlines which approaches may be more applicable to the different causal dynamics of each context.

In the description above, sense making is described as operating in an orderly fashion moving from the chaotic context to the simple in a clockwise fashion. The reality map provided by the Cynefin framework for the process of sense making in each context is based totally on a view of causality and does not incorporate worldviews as metaphors for describing reality. In the description above, sense making through iterative cycles eventually leads to an increase in learning and knowledge. But, as French (2015) argued, this is purely an idealized conception, because in reality, social systems often lie across contexts, implying that we may know nothing about some entities, relationships, and behaviors, a little about some aspects, relationships, and entities while also having a complete understanding of others. Invariably in real life when dealing with complexity, French (2015) said, humans and individuals make errors in sense making, leading to multiple shifts through the Cynefin framework in all directions. French (2015) noted that even when systems, situations, or contexts are considered to be simple,

uncertainty cannot be considered to be zero. He argued that all humans engaged in the process of sense making must be aware that the possibility exists that reality may change at any instant due to the constantly moving and changing reality of social systems. For French (2015), living with a certain level of uncertainty needs to be accepted and incorporated into one's reality map when dealing with social systems. Another important point argued by French (2015) is that one should avoid terminological confusion when working with the Cynefin framework, as the domain and context of the complex should not be confused with complexity. He argued that mathematical conceptions of complexity science are in fact not suited to the complex domain at all, but are rather more applicable in dealing with computational issues that belong to the complicated and simple spaces. While the point made above by French (2015) seems credible, it stems from French's realization that modeling in the complex domain has in fact done little to really address social system problems. It is not that complexity science should not be grouped in the complex domain, but rather that the complex domain as defined by Kurtz and Snowden (2003), Snowden and Stanbridge (2004), Snowden (2005), *Snowden and Boone (2007),* and Snowden and Rancati (2021) contains many more types of systems, states, and domains not accounted for by the Cynefin framework.

The Cynefin framework for Gorzeń-Mitka and Okręglicka (2014) develops a true multi-ontological framework for sense making. They argued that it provides true guidance for managers, leaders, and participants in social systems who are engaged in the process of sense making. It also provides an outline of which methods may be more appropriate in certain system contexts than others. To understand which methods of analysis the Cynefin framework specifies for certain systems contexts, Snowden and Stanbridge (2004) and Snowden (2005) developed the landscape-of-management matrix (Figure 1.2). First, the matrix, as was discussed in Chapter 1, follows Snowden and Stanbridge's (2004) and Snowden's (2005) own conception of the ontology of certain disciplines of management. According to them, the framework miss-specifies certain management approaches, as various approaches in management and organizational sciences within varying disciplines are based on

differing worldviews, even though they find their functional homes under one label. What is required and is missing from Snowden and Stanbridge (2004) and Snowden's (2005) approach is an understanding and explanation of which worldviews and methods are appropriate in different contexts in order to build contextual-appropriate understandings of complexity through conscious, multi-ontological sense making.

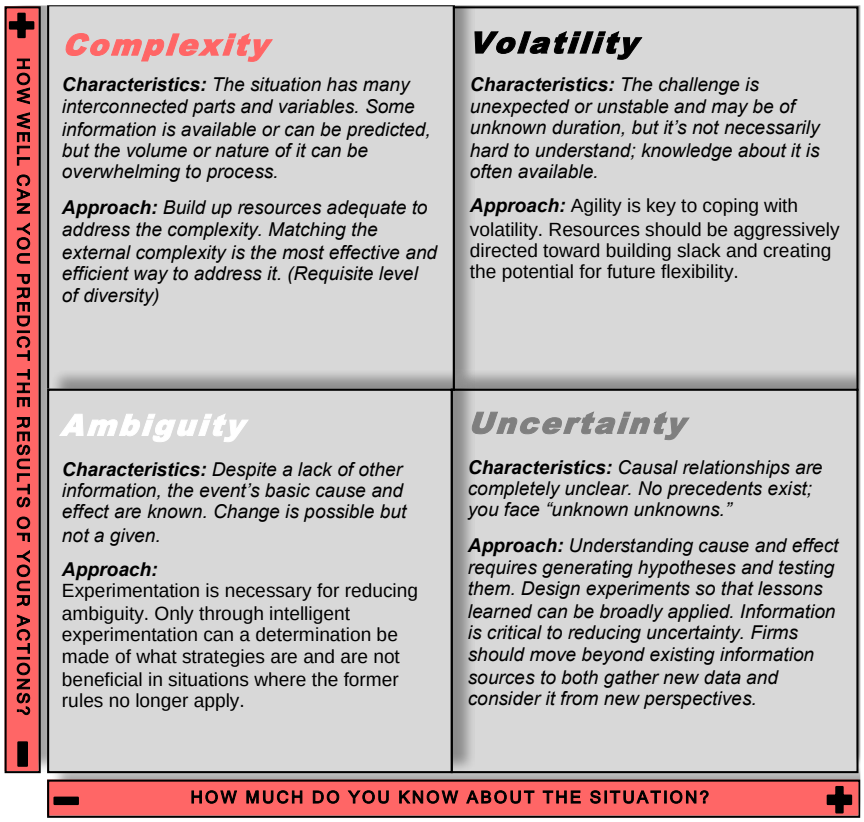
Second, while the Cynefin framework is good at explaining different aspects of dynamic social systems as they move through different states of functioning, it is not well suited to explaining multi-dimensional problems, because in reality social systems span over multiple contexts and dimensions. Wicked problems, which are among the most challenging manifestations of complexity, and which are concerned with multi-dimensional, overlapping systems, are also not specifically identified in the framework. Similar to other multi-ontological sense making frameworks, the Cynefin framework provides little guidance as to what role technology should play in sense making and in what situations it may be useful to use the power of technology to assist in sense making activities. What is required is a more complete system of conscious, multi-ontological sense making that addresses a wider range of system states, domains, and problem states than the Cynefin framework. This revised framework should also address the role of technology in aiding sense making as well as the dynamics of social systems and applicable worldviews for understanding, interpretation, and action in the different system states and contexts.

VUCA

According to Bennett and Lemoine (2014) VUCA is an acronym which stands for volatility, uncertainty, complexity and ambiguity. It is a multi-ontological, sense making framework in that it provides and proposes differing reality maps for understanding and responding to volatility, uncertainty, complexity, and ambiguity in the world.

Figure 1.6

VUCA Framework of Multi-Ontological Sense Making



Source: Adapted from Bennett & Lemoine (2014), "What VUCA Really Means for You," Harvard Business Review, 92(1/2), and Bennett & Lemoine (2014), "What a Difference a Word Makes: Understanding Threats to Performance in a VUCA World," Business Horizons, 57(3), 311-317.

According to Bennett and Lemoine (2014a), each of the domains of the VUCA framework presents unique challenges for sense making and action, as each domain requires different reality maps and different responses to be effective. They argued that failures in sense making typically lead to the incorrect identification of a situation under the wrong label, leading to a miss-allocation of resources and sub-optimal interventions. Some of the primary ideas of the different domains of sense making in the VUCA framework are summarized below:

1. *The volatile context*: For Bennett and Lemoine (2014a), a volatile context is a context that is defined by instability and unpredictability. They argued that this context does not necessarily imply the idea of complexity but rather the absence of critical knowledge or doubts about which outcome would emerge from rapid events. Causes and effects are mostly understood in the volatile context, but uncertainty persists as to which outcome will be emergent in the system if rapid change had to occur. When dealing with a volatile context where cause and effect is largely understood but change is considered to be unpredictable in both magnitude and rate*, agility* should be the main focus of humans and groups.
2. *The uncertain context*: Bennett and Lemoine (2014a) described the uncertain context as a situation in which a deficit of knowledge exists, not about causes and effects, but rather about the *significance* of the event in which change had to occur. They argued that uncertainty is not volatility, as no change could also be emergent in an uncertain context. To deal with an uncertain context after engaging in sense making to identify the context, they argued that humans and collectives simply need to obtain more information about the situation to improve their understanding of the context. At the same time, the uncertain context could also refer to a context in which the information is imperfect or imprecise, implying that additional information may not improve understanding.
3. *The complex context*: For Bennett and Lemoine (2014a), the complex context describes a situation which is characterized by a high degree of interconnectivity and structural complexity. A complex situation, they argued, is not characterized by volatility and uncertainty but rather by the need to process vast amounts of information and data to build an idea of the system in its entirety. They argue that the only way to deal with complexity is to establish a requisite level of variety, after the process of sense making has occurred, to identify that you are dealing with a complex situation.

4. *The ambiguous context*: Bennett and Lemoine (2014a) determined that the ambiguous context describes a situation in which no notion of certainty exists as to the cause and effect of relationships in social systems. To best deal with an ambiguous context, Bennett and Lemoine (2014a) argued that individuals and collectives should, after engaging the process of sense making, identify the ambiguous context, and engage in experimentation to identify what works.

The contexts of the VUCA framework outlined above distinguish themselves from the adjacent contexts by identifying differing *causal* dynamics for each context of complexity. The VUCA framework assists in identifying different types of causality, based on the dynamics of complex systems and resists the tendencies for humans in sense making to engage in single-ontological sense making. In addition, the VUCA framework outlines some approaches which may be more applicable to the different causal dynamics of each context. The approaches for each domain are, however, crudely specified, as no direct mention is made of any specific tools or techniques which may be useful for management practitioners. While identifying different contexts for sense making in the reality of an unpredictable and changing world, the VUCA framework, like the Cynefin framework, focuses primarily on causality and understandings of complexity science as the distinguishing criteria for contexts and does not incorporate worldviews as metaphors for describing reality. While the VUCA framework builds a mutually exclusive view of contexts, this is purely an idealized conception as in reality, social systems will lie across contexts, implying that we may find some aspects of one system ambiguous while others are volatile and uncertain and still others may present as complex. VUCA, then, while being competent at explaining different aspects of dynamic social systems as they move through different states of functioning, is not well suited to explaining the multi-dimensional in social systems which span over multiple contexts. Wicked problems, which are among the most challenging manifestations of complexity, and which are concerned with multi-dimensional, overlapping systems, are also not specifically identified in the VUCA framework. Similar to other multi-ontological sense making

frameworks, the VUCA framework provides little guidance as to what role technology should play in sense making and in what situations it may be useful to use the power of technology to assist in sense making activities.

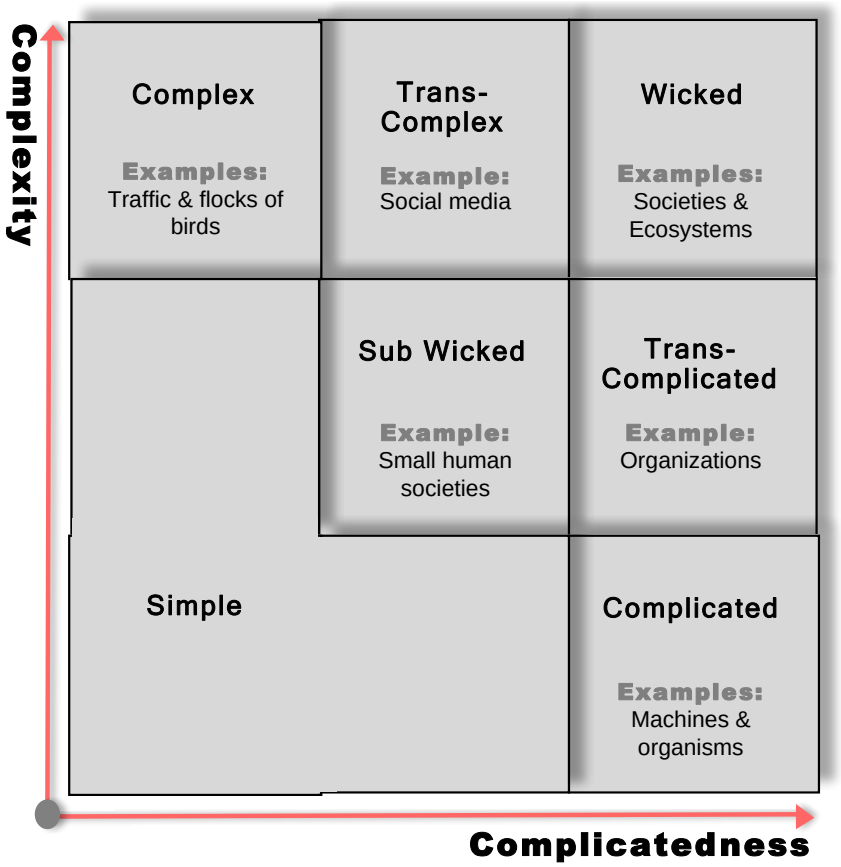
Spectrum of Overwhelming Systems

Andersson and Törnberg (2018) correctly stated that the tools and techniques traditionally employed in social science are not well suited to addressing the needs of complex problems in rapidly evolving social systems. As they noted in response to these shortcomings, new tools and techniques have started to emerge that address complex, multi-dimensional, and wicked problems. Rather than approaching the problem of sense making from a top down approach based on planning, prediction, and control, Andersson and Törnberg (2018) have instead adopted a bottoms up approach which emphasizes contexts related to ideas about complexity, such as unpredictability, multi-dimensionality and path dependency.

For Andersson and Törnberg (2018) these aspects of social systems are the irreducible causes of the problems that are not managed, predicted, or prevented as we navigate complexity in the world around us. Andersson and Törnberg (2018) started by first including the context of wickedness in their categorization of problems which by their very nature seem to defy any resolution. They further expanded complexity by also including the complicated and complex contexts “as well as discernable sub-classes of these” (Andersson and Törnberg, 2018, p. 119). This is important because it not only allows for sense making to identify the specific context of wicked problems but also creates the opportunity to distinguish among other important contexts in sense making that are usually considered only under the single banner of complexity in social systems discussions. The Spectrum of Overwhelming Systems (SOS) diagram which Andersson and Törnberg developed in 2018 to expand ideas around sense making, complexity and social systems is depicted in Figure 1.7.

Figure 1.7

Spectrum of Overwhelming Systems



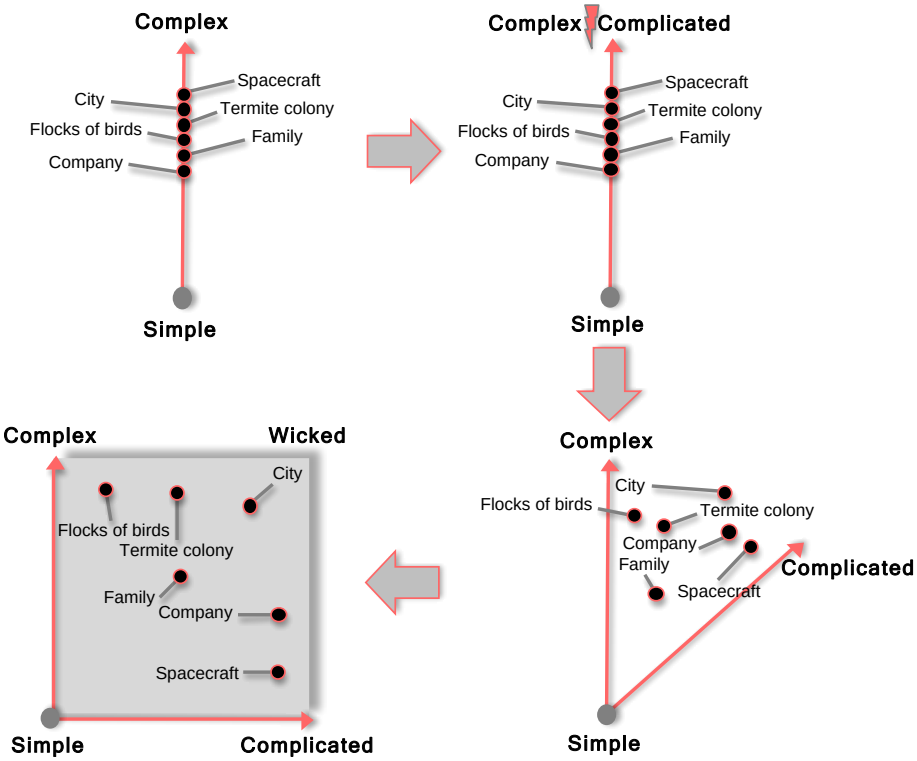
Source: Andersson and Törnberg, (2018), "Wickedness and the Anatomy of Complexity" Futures, 95, 118-138.

The above Spectrum of Overwhelming Systems (SOS) develops an ontological map of open-ended categories for sense making in social systems. The departure point of the framework is fundamentally different from earlier sense making approaches, as Andersson and Törnberg (2018), rather than working from theory to practice, sought to understand *why* formal theoretical models from complexity and systems science collectively have had limited impact on addressing wicked problems in social systems. Hence, the SOS, in opposition to other approaches, classifies wickedness as a property of social systems. This is a fundamental shift in thinking, as it allows for the incorporation of new ideas

such as wicked dynamics, wicked phenomena, and wicked systems into the lexicon of social systems. Andersson and Törnberg (2018) arrived at this conclusion by analyzing the ideas that exist about complexity. According to them, when we consider the idea of complexity, we do not point to any particular generative processes but mostly encompass social phenomena such as heterogeneity, tangled webs of relationships, multi-level hierarchies, sensitivity to initial conditions, non-linearity, and emergence. Describing complexity accordingly has allowed for consolidation of a number of causal processes and types of organization under one category rather than separating and clustering these concepts. To understand what we should consider to be complex, Andersson and Törnberg (2018) distinguished between the concepts of complex and complicatedness and filtered out the remaining categories. When one approaches complexity from this perspective, they argued, complexity can be best represented by systems like an interacting flock of birds while complicatedness is best represented by systems like computers. This separation and clustering, they argued, broadly corresponds to the whole, distinct paradigms of systems theory and to the types of systems that complexity science can model and analyze. The most immediate effect of this clustering, according to Andersson and Törnberg (2018), is that systems that work in a similar manner are now clustered together. This approach led to the formation of the new category of *wicked systems* in which Andersson and Törnberg (2018) noted a mixture of the two qualities of complexity and complicatedness. Figure 1.8 illustrates how Andersson and Törnberg (2018) split complex and complicated and created the new domain of wicked systems.

Figure 1.8

Creating the New Domain of Wicked Systems



Source: Adapted from Andersson and Tornberg, (2018),"Wickedness and the Anatomy of Complexity," Futures, 95, 118-138.

If we accept Andersson and Törnberg's (2018) perspective, it becomes possible to see why social systems could potentially behave as both complex and complicated systems at the same time, depending on which worldviews we assume in sense making. It also may be possible from this perspective to consider that wicked systems emerge from the interactions of social systems that are simultaneously complex and complicated. The bigger question may be, however, are we miss-categorizing problems by not adopting an appropriate worldview when sense making. In order to consider wickedness as its own distinct system, and to ensure clarity and context in its categorization as a system state, we will briefly review systems contexts and states that have been identified by

Andersson and Törnberg's (2018) Table 1.3 outlining the different features of each system, context, or state identified in the Spectrum of Overwhelming Systems.

Table 1.3

Systems Identified by the Spectrum of Overwhelming Systems

Type	Characteristics	Challenges	Approaches
Complicated Systems *Examples:* Technology, organisms	- Scale-separated level of hierarchies - Potential for tall hierarchies, spanning from small to large scales - Components have relatively few sub-components - Sub-components are co-adapted to specific complementary functions in a whole with emergent affordances and functions - Low redundancy: components cannot generally serve as substitutes for other components - Sub-components are "*slaved*": they often make no sense separately - Phased lifecycle	- Controlling and predicting the External Environment - Alignment of goals and aims of components ("*slaving*")	Engineering, early Systems Thinking, Cybernetics, Operations Research, Control Theory
Complex Systems *Examples:* Herds, traffic, social networks	- Self-assembly/organization and adaptation - Emergent patterns arise from the dynamics (shoals, traffic jams, paths, etc.) - Many components on same level but few component classes - High redundancy as components can substitute for other components - Loose exogenous constraints on formation and dissolution of interactions between components - Exogenous structuring constraints apply to interactions between types of components (How do cars and trucks behave in traffic?) - If we deal successfully with emergence among very large numbers of interacting entities through simulation, then, from the view of component classes, complex systems are simpler than they appear - Distributed action, monitoring, and processing provides affordances unavailable to complicated systems	- Chaos - Unpredictability - Amplification of disturbances - Emergence - Harnessing complex systems for adapted purposes invokes the same demand for "*slaving*" components as for complicated systems	Computation, Dynamic Systems Theory, Chaos Theory, Simulation

Trans-complicated Systems *Examples:* Social systems or biological systems with different species	- Adaptive rationale: Tapping into adaptive affordances of complicatedness for systems whose components have "*an agenda of their own*."	- Alignment must be actively maintained by dedicated systems - Controlling and predicting the external environment is hard and expensive - Duplication is much harder than for complicated systems - Many utopian visions	Organizational and political theories
Trans-complex Systems *Examples:* Sharing economy, smart grids, forums, social media, terrorist networks	- Organizations based on disseminated designs, shared views, norms etc. (e.g., in religion and politics) - Adaptive rationale: Tapping into adaptive affordances specific to complex systems; e.g., organizing with scarce resources, organization in hostile/repressive environments; designing, or increasing the level of control, specificity and alignment of, an adaptive complex system.	- Hard to achieve detailed designs due to highly non-linear mapping between specification and resulting system - Alignment must be actively maintained by dedicated systems - Controlling and predicting the external environment is hard and expensive	Designing micro-component classes such that desired features emerge as many components interact, Dynamically scaffold the behavior of components ("*herding the system*")
Wicked Systems *Examples:* Large human societies, Ecosystems	- The arena of and for interaction between adapted systems - Components have own agendas and exhibit the full range of ecological interaction modalities - Components are heterogeneous, versatile, and engage in multi-level interactions under few constraints. - Strongly distributed and pervasive innovation/adaptation. - Strongly interconnected seamless webs, cascading effects, interventions and technological innovation - No general avenue for formal simplification of the system - Arenas for adaptation - Hotbeds of innovation (without wickedness, no creativity can exist)	- Intermittent, unexpected behavior (unpredictability and ontological uncertainty) - Unlimited horizon (both in time and scope) and for consequences of actions - Uncertainty grows rapidly with time and scope - Short foresight horizon and long consequence horizon - Self-undermining innovation pathways - Innovation upsets any level of hierarchy constantly rewriting the rules of the game - Control demands a global overview, but growth and change is local and demands no such overview - No two subsystems or problems are likely to be identical: uniqueness hampers learning and generalization	Approaches based on complicatedness and complexity, including traditional approaches, narrative approaches and harnessed innovation approaches
Sub-wicked Systems	- Differentiating features from wicked systems: Smaller in scope	- Same challenges as wicked systems above	Sub-wickedness is attractive basis for dealing

Examples: Small societies, local social contexts, workplaces, early human societies	- Smaller scope allows sub-wicked systems to fit into the range of human cognition - Exhibit wicked problems, but ones small enough to handle		with wicked problems since it fundamentally matches the ontology of wickedness

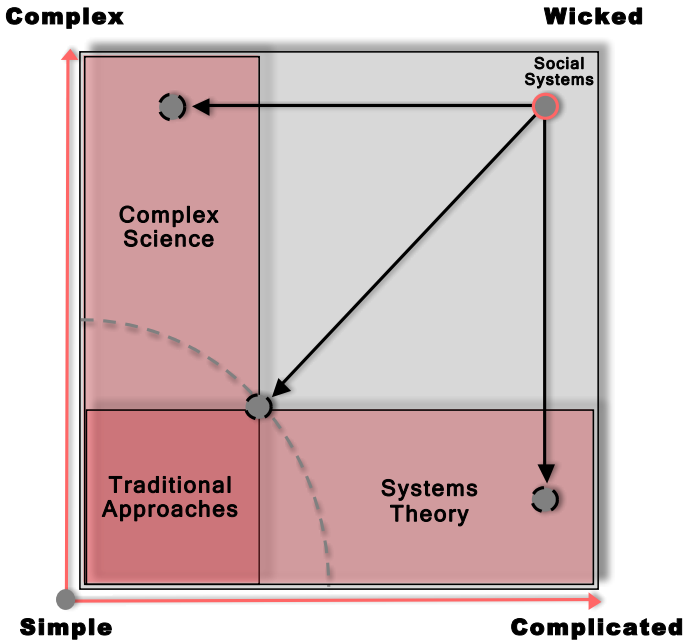
Source: Adapted from Andersson and Tornberg (2018), “Wickedness and the Anatomy of Complexity” Futures, 95, 118-13.

The meta-ontological map developed by Andersson and Törnberg (2018) in Figure 1.7 proposes that systems that are both complicated and complex should be referred to as *wicked* systems. As a sense making device, the framework proposes that social systems would be located near or close to the wicked corner depending on their scale and size. According to Andersson, Törnberg, and Törnberg (2014), problems and challenges in social systems cannot be addressed in totality by either complexity sciences approaches or by systems sciences approaches. They warned that economic models of social systems make sense of the social reality only by moving social systems into the simple domain. They explained that this creates over-simplistic but convincing models of social reality that come at the cost of obscuring more of reality than they reveal, making these models totally ineffective in the real world. They asserted that in reality, systemic approaches to sense making emphasize the complicatedness of social systems and attempt to make sense of social reality by moving social systems more into the complicated domain. This approach, they argued, captures more of the structure and dynamics of social systems than do economic models, but conversely it also moves sense making into the domain of design, systems thinking, and analysis, a move that identifies social systems more as complicated systems. They explained that this creates models of social reality which, although they are more biased to the complicated domain and thus better at explaining the dynamics and structure of social reality than are purely economic models, still obscure some aspects of the real world. For Andersson et al. (2014), complexity science similarly argues that social systems are not simple or complicated but rather

are complex and that they can be understood only by a sense making approach that is grounded in complexity. They asserted that this belief in complexity science has led to successes in understanding some simple and complex systems which in turn propagated the belief that eventually all social systems could be made sense of through these complexity approaches, either by scaling models up or by linking models together. However, complexity science practitioners in reality have been able to address systems only in the complex domain, and Andersson et al. (2014) proposed that in reality most complexity science practitioners will agree with this logic and will self-identify their work as primarily limited to the complex domain. Despite this notion, they determined that complexity science still holds itself forth as the only science capable of dealing with systems of high complexity, and they argued that there is no realization or recognition from the complexity science community that fundamental changes occur as we shift along the complicated axis of Figure 1.7. Figure 1.9 illustrates how sense making of social systems has been cast into the simple, complicated, and complex domains, according to the conception of Andersson et al. (2014).

Figure 1.9

Casting of Sense Making into Different Domains



Source: Adapted from Andersson and Tornberg (2014). “Societal Systems–Complex or Worse?” Futures, 63, 145-157.

Andersson, et al. (2014), affirmed that practitioners, researchers, and scholars obtain only a limited snapshot of the reality of social systems when they apply sense making from either a simple, complicated, or complex perspective. If social systems are both complex and complicated, then surely, they argued, it would be practical and obvious to adopt a mixed approach to sense making and analysis. They pointed out that this is precisely what has happened in practice with the application of techniques like multi-agent simulations that employ both systems methodologies and complexity theory. They noted that a multi agent approach to social systems is often viewed as an extension of the hard sciences into the social sciences in which complexity modeling is extended beyond normal approaches. In this approach, they argued, the agents, types of interactions, and the environment are designed with knowledge derived from the systems approaches. These agent-based models are then subjected to an environment in which the dynamics lead to emergence and pattern formation and thus must also be thought of as complex models. They demonstrated that many other models can be built utilizing a systems ontology, which also incorporates ideas from the complexity sciences. Despite this recognition, Andersson, et al. (2014) argued that the rules within wicked systems are extremely hard to uncover and that these very same rules often change as result of the dynamics of the system itself. They further noted that within wicked systems, there is no way to separate the ontology and general state of the systems from one another. Thus, while it may certainly be possible to build simple, multi-combination models that incorporate both complexity and complicated dynamic structures, it is not necessarily feasible when dealing with the reality of wicked systems. When methods are combined, they said, they combine the *weaknesses* of each method rather than strengths of each approach, thus minimizing the effects of the combined approach. They therefore argued that as one shifts right on the complicated plane and upwards on the complex plain one actually enters a new domain that is not simply a mix of the complex, the dynamic, and complicatedness but rather something new, transformative, and quite

unlike either domain. Andersson, et al. (2014) further argued that no scientific approaches actually exist to deal with the wicked corner of the domain.

The major contribution of Andersson, et al. (2014) and Andersson and Törnberg (2018) is the argument that social systems may in fact reside in a completely different domain and context from what they have previously been categorized. While this argument is enticing, some fundamental problems remain, as this proposal is hardly grounded in philosophy, and no specific worldview currently exists to accommodate this perspective. The landscape of management that Andersson, et al. (2014) proposed in explaining how sense making and analysis cast the different perspectives of social systems into different quadrants of the spectrum of overwhelming systems has also not been verified. To corroborate or to disconfirm this perspective, a detailed analysis of management methods and techniques is required in order to confirm and plot them. When considering SOS as a sense-making framework, it must be noted that it is useful for structuring meta-theoretical viewpoints about how different types of systems and problems intersect. In doing so it provides a conceptual framework and reality map for understanding social reality. It does, however, ignore the role of worldviews in sense making as well as any explanation of causality in the different systems states. The transitory categories, while being defined in this scheme, also lack clarity as to which methods of analysis and techniques may best be suited to addressing systems and systems problems in these states. The transitory categories of the spectrum of overwhelming systems does, however, allude to how systems theory extends beyond an ordered ontology and heuristics-based epistemology (in opposition to Snowden and Stanbridge's (2004) and Snowden's (2005) characterization) to deal with systems that would previously have been labeled only as complex. As such it provides the groundwork for explaining how methods and techniques have been developed that actually wander into this transitory category to address systems and challenges in these areas. What is still required and is missing from the description of these transitory systems categories is an understanding and explanation of which worldviews and methods are appropriate in these different transitory contexts in order to build contextual-appropriate

understandings through conscious, multi-ontological sense making. The SOS also ignores other contexts that may be of relevance, such as chaos and disorder, which are not characterized in this sense-making framework. While providing a rough outline for a new approach to sense making, the spectrum accordingly lacks some refinement in a number of areas before it can truly be considered as a sense making approach. Its most significant contribution is potentially the argument that social systems may in fact reside in a domain and context completely different from what they have previously been categorized.

Knowledge Gaps

The literature reviewed in Chapter 2 suggests that sense making of ambiguous contexts, domains, and system states can be enhanced by using a structured, conscious approach to multi-ontological sense making. The literature, although clearly identifying differing frameworks for sense making, showed that the majority of sense making approaches are either grounded in a complicated perspective of social systems and complexity or alternatively in a complexity science perspective of social reality. In addition, all the sense making frameworks discussed provided little guidance as to what role technology should play in sense making and in what situations it may be useful to use the power of technology.

When evaluating the position of Andersson and Törnberg (2018) in relation to the dominant Cynefin framework for multi-ontological sense making, it became clear that the dominant paradigm for sense making has some fundamental weaknesses. As was described earlier, the Cynefin framework follows a misguided conception of the ontology of certain disciplines of management. Accordingly, the framework leads to the miss-specification of certain management approaches. The discussion also indicated that while the Cynefin framework is good at explaining different aspects of dynamic social systems as they move through different states of functioning, it is not well suited to explaining multi-dimensional problems, because in reality social systems span multiple contexts and dimensions. The only sense making approach that suggests an alternative conception of complexity is the *spectrum of*

overwhelming systems, which, in opposition to earlier approaches, recognizes that social systems rank highly both in terms of complex dynamics and the complicated structural aspects of complexity. If one accepts the perspective developed by Andersson and Törnberg (2018), then it becomes possible to see why social systems could potentially behave both as complex and complicated systems at the same time, depending on which worldviews we adopt and adapt to sense making. The bigger question propagated by accepting their approach is whether or not we are actually adopting appropriate worldviews to sense making in the first place. The primary contribution of Andersson, et al. (2014) and Andersson and Törnberg (2018) is the argument that social systems may in fact reside in a domain and context completely different from that to which they are currently assigned, leading, ultimately, to the question of whether an appropriate science actually exists to deal with the complex and complicated nature of social reality.

Conclusions

The review of the literature suggests that a new philosophical basis may be required to transcend a mixed-methods approach for making sense of social systems that rank highly in terms of both complex dynamics and complicatedness. This fact stems from the inability of the mixed-methods approach to effectively deal with the multi-dimensional problems of both dynamically complex and complicated systems. The review of the related literature therefore builds a case which supports further research into the current landscape of philosophical approaches and worldviews that could be applied to sense making in different social systems contexts, domains, and states.

Management literature and business schools have historically been focused on leading, directing, and controlling social systems. This has led to the development of a heavily strategy-focused college curriculum and an industry in which consulting houses sell strategy as a service across the globe. Strategy planning, directing, and controlling has consequently turned into one of the biggest industries of our time as companies and social systems grapple with escalating complexity and complicatedness. As was discussed above, complex situations cannot be managed and controlled in

the manner in which companies, leaders, and managers have been taught to manage and control them. Because reality is so unstable, planned actions and strategies that are based on previous reality maps are clearly inadequate in this context and have no effect on social systems. In such a context as was described above no amount of planning or strategy will be effective in dealing with complexity. In such a context the only plausible alternative is to attempt to *navigate* complexity. Navigation in this sense is different from leading and controlling because it relates to determining how to steer through blind experimentation in the context of the complex. This blind experimentation involves iterative sense making, and not any form of strategizing, leading, planning or controlling. This view, while being congruent with emerging theories in complexity and systems science, has not been well accepted by business schools, leaders, organizations, and strategy consulting firms, as it essentially preaches a message of anti-strategy and therefore threatens the global industries of business education and strategy consulting, making it essentially a heretical idea. Currently, improper implementation is blamed when strategy approaches fail.

The dynamic nature of complexity creates a perpetually altered environment, renders any positive results of classical strategy work short-lived and ineffective, and consistently generates new opportunities and business for the aforementioned threatened industries. While this notion is difficult for leaders and business to accept, it has also proved difficult for followers to accept, as it does not help followers to reduce uncertainty or ambiguity in social systems, leading instead to role ambiguity and conflict.

It will have been noted that none of the sense making approaches discussed in this chapter addressed the issue of philosophy and worldviews and their current and potential influence on sense making. Sense making as a critical process for understanding and responding to the world was shown to rely on our assumptions and thus philosophy.

CHAPTER 3: LITERATURE REVIEW II: PHILOSOPHY

Chapter 2 presented a summary of the most important literature on sense making and multi-ontological frameworks for sense making. This review of the related literature highlighted areas of interest, focal points, interpretations, descriptions, understanding, areas of overlap and connections between some of the research while also identifying several research gaps, notably including the importance of worldviews.

Because any worldview is inherently based on a background of theoretical and methodological ideas that are deeply rooted in philosophy, it is important to consider the philosophical orientations that influence our ontology and epistemology. The first section of this chapter closely follows the philosophical outline and structure that was developed in the school of organization theory to identify and discuss different philosophical foundations for worldviews that could have application to sense making in complex situations, including Positivism, Modernism, Marxism, Interpretivism, Post Modernism, Pragmatism, and Metamodernism. The second section goes on to identify sixteen specific worldviews and discuss their relativity to sense making and problem solving in social systems.

Positivism

Positivism as a philosophical approach is heavily reliant on observation, experimentation, and comparison for the production of knowledge, truth, and reality. Kieran (1997) shows that this philosophical approach emerged from the ancient debate between philosophy and poetry which Plato initiated. Kieran (1997) and Hassard (1995) both explained that this debate was later reconstituted as a debate between the hard sciences and humanistic approaches. Hassard (1995) said that the intent of positivism's reformulation was to establish a new intellectual foundation to solve the problems of a newly industrialized world through scientific inquiry and thought. Hassard (1995) noted that for positivists, social science is driven by scientific observation, experimentation, and comparison, and guarantees social progression and absolute knowledge about social reality. He explained that

positivism should be seen as an alternative to a theological and supernatural understanding of reality and as an alternative to a metaphysical approach that emphasizes abstract autonomous entities.

From the perspective of positivism, understanding of the world is developed though our understanding of causality. Donaldson (2003) indicated that a positivist approach is rooted in a causal understanding of reality that, when applied to the social, management, and organizational sciences, seeks to build a body of knowledge that consists of generally causal worldviews, theories, and methods. According to him, positivist approaches to social sciences prescribe an empirical approach for validation and are positive because they describe how reality operates rather than offering a prescriptive approach based on value assessment. In addition, positivists believe that society, management, organizations, and social phenomena can be explained only through observation, experimentation, and comparison, which involve developing hypotheses and comparing them against observable and measurable evidence which is either causal or not.

Hassard (1995) and Donaldson (2003) agreed that the application of a positivist approach in the natural sciences is historically tied to the advancement of knowledge and that the same approach, when applied to the social world, would increase knowledge about social phenomena. Further, both indicated that positivists seek to identify the individual characteristics that influence individual, group, and societal behavior and constrain these factors to influence human activity. Positivism is reductionist in the sense that it looks for individual factors that influence human activity and follows a causal logic of *x* causes *y,* while ignoring values. For positivists, observation is also considered to be absolute, infallible, and error free. Positivists accordingly develop predictions of social behavior by taking these "error free" observations and applying laws and theories. Positivism should be thought of as a reductionist, value free philosophy for the understanding, inquiry, and explanation of society, management, organizations, and social phenomena. A positivist epistemology as outlined by Hudson and Ozanne (1988), Hassard (1995), and Donaldson (2003) holds that valid knowledge and truth can be established only from sensory experience and scientific observation and that valid knowledge is a

posteriori knowledge, which is based on empiricism, while a positivist ontology is grounded in the belief of a completely external, observable, and objective reality, regardless of the researcher's beliefs or attitudes.

Modernism

Modernism as a philosophical approach for the production of knowledge, truth, and reality, has dominated management thinking and social sciences in modern times. Chia (2003) stated that a modernist approach represents the most fully developed view of a materialist and rationalist view of society, organizations, and social phenomena. His description of Modernism, while being very similar to positivism, also considered and identified the possibility that observation may be error prone. Modernists, in opposition to positivists, believe in an objective and independent reality, which is separate from the human mind, behaviors, and experience. For modernists, all social systems are the product of human interactions, but regardless, they are experienced as an independent, objective reality by participants.

Popper (2014) and Chia (2003) said that modernism has its roots in the metaphysical assumptions of the ancient Greek philosopher Parmenides. Chia (2003) described Parmenides' understanding of reality as everlasting, inflexible, privileged, "*homeostatic and entitative conception of reality*" (Chia, 2003, p.115) which has dominated western thought processes, society, thinking, and knowledge production in recent times.

For Modernists:

> . . . reality is atomistic, stable and relatively unchanging. Atomism presupposes that reality is made up of individual, discrete particles with identifiable properties and characteristics that combine to produce the multifarious life-size phenomena of our experiences. (Chia, 2003, p.115)

According to this conception, as Chia (2003) and Marsonet (2019) presented it, Modernists believe that any human experience is reducible to individual components, which collectively, through connection to each other, produce the characteristics of the whole experience. Accordingly, Modernists cognitively conceive the atomistic parts of any social experience as stable components that can be "*observed, differentiated, recorded, identified and classified in a comprehensive set of representation*" (Chia, 2003, p.115). Modernists, he explained, believe in the existence of a totally universal, holistic, ordered reality that explains and predicts all social behavior based on the hierarchy of interrelated relationships. Only that which is stable within the flow of the dynamic and that which is totally universal, is considered as a form of real knowledge for Modernists. As Chia (2003) asserted, this primary premise is the driving force behind science's preoccupation with meticulous, error free, and accurate inquiry. Modernism, when applied to developing theory, inevitability privileges the being over the becoming, the already formed over the unformed, the visible over the invisible, presence over absence, consciousness over unconsciousness, literal meanings over metaphorical allusions, analytical breaking up and decontextualizing of experience over its wholesome and deeply contextual existence and the use of rational and causal explanations as the sine qua non of intellectual analysis over a reliance on the intermediate and dynamic intuition of things (Chia, 2003, p. 118).

These building blocks of philosophical assumptions as Chia (2003) described them are the foundation that has shaped the Modernist conception of the social, organizational, and managerial worlds. A Modernist epistemology, as described by Chia (2003) and Popper (2014), holds that only scientifically verifiable knowledge or logical proofs are meaningful and accorded legitimate knowledge status. A Modernist ontology, they argued, holds an atomistic view of the world as consisting of discrete and observable components that interact in a causal, ordered, and hierarchical manner.

Marxism

Karl Marx's revolutionary and sociologist contributions to philosophy must be considered within the framework of dialectical materialism, wherein material needs cause conflict that results in political and historical events.

Cornforth (1980) noted that much of what is characterized as Marxism stems from Marx's criticism of the political economy. The tenets of Marxist philosophy that are based on this criticism are *dialectics* and *materialism*, which were characterized by Cornforth (1980) to stand in opposition to the ideas of *metaphysics* and *idealism.* Adler (2011) said that dialectic materialism deals with the idea that objective reality inherently includes contradictions. This idea, as he presented it, is in opposition to positivist and modernist philosophical positions, which rather assume that contradictions can really exist only between differing logical alternatives. Adler (2011) pointed out that for Marx this was an important distinction, as Marx argued that it is the contradictions in the real world that explain the development of ideas rather than contradictions between logical positions. Ontologically, as Adler (2011) noted, this places Marx in opposition to both *materialism,* which presumes that ideas have no efficacy, and to *idealism,* which views reality as being driven by ideas. This is an important point for Adler (2011), who argued that it implies that "Marx distinguishes between knowledge that we have of the world" and "the knowledge [of the] independent world" that exists around us (Adler, 2011, p. 124). Adler (2011) argued that while for Marx all knowledge is provisional, Marx also implied that the ultimate goal of science must be to discern the underlying forces that give birth to knowledge of the independent world that exists around us. Marxism proposes a reorientation in scientific thought focused on explaining the generative mechanisms in the world around us that are not necessarily visible or observable. Marxism, as Adler (2011) stated, accordingly has a stratified ontology in which scientific thought should follow a path from the abstract and not visible to the visible in the world around us. Marxism is therefore radically opposed to empiricism, as defined by Adler (2011), which views the goal of science as uncovering the patterns that can be observed in the world around us. A Marxist position is, also, however, radically opposed to

constructivism, as Marx argued that it does not see objective knowledge as an illusion. Marxism, as Adler (2011) explained it, embraces the social nature of knowledge, arguing that our access to the knowledge-independent world is always mediated by the social aspect of knowledge. Marx accordingly, as understood by Cornforth (1980), Adler (2011), and Hatch and Cunliffe (2006), argued that our knowledge-independent world is always mediated by existing concepts and that in a class-divided world these aspects must be mediated by political considerations. Marx accordingly argued that if one adopts a standpoint of the dominant elite, then theories that legitimize this position will inevitably be developed. Adler (2011), in accordance with this view, showed that for Marx, more objective knowledge can be generated only by bringing into focus the contradictions between the elite and exploitation, which then helps movement towards the emancipation of the working classes. It is from this viewpoint that Marx contemplated the division of labor. Marx and Engels (1996) clearly conveyed the point that Marx fundamentally agreed with Adam Smith that the division of labour increases the productive power of labour. However, Marx, in contrast to Adam Smith, believed this industrialization is focused on achieving control and dominance over the workforce while ensuring profitability and efficiency for management. Marx and Engels (1996) further explained that for Marx the division of labour, which enhances the means of producing commodities with a given quantity of labour, results in a decline in the price of commodities, which accelerates the accumulation of capital and lowers the value and cost of labour. According to Hatch and Cunliffe (2006) Marx argued that since labor was the largest component of the cost of production, capitalists pressure laborers to work more efficiently by continuously imposing new forms of managerial control and domination on work processes. Adler (2011) accordingly stated that for Marx, legitimate knowledge creation must begin with the real experiences of the oppressed, exploited, controlled, and dominated so that we can learn how they can be changed. A Marxist epistemology is really focused on *interpreting the world from the perspective of changing it,* and is therefore focused on constructing an image of the world that is fundamentally

different from the current image. A Marxist ontology holds a stratified view of the world as consisting of the abstract and not visible to the visible in the world around.

Interpretivism

Interpretivists adopt a divergent perspective to positivists and modernists by arguing that lived experience cannot be understood in the same way as the natural and physical worlds. Hatch and Yanow (2003) proposed that unlike scientific phenomena, humans co-create meaning in a social context. They noted that any social science must accordingly also consider what carries weight and is meaningful for humans in social contexts. Clearly, this requires an explanation of how "*groups and individuals develop, express and communicate meaning*" (Hatch & Yanow, 2003, p. 65). They noted that in addressing this question of how things may be known, pioneering interpretive scholars turned to the German philosopher Immanuel Kant's concept that knowing depends on prior knowledge. The central implication of Kant's thinking is that if a knower comes to social inquiry with prior knowledge and that modifies what is understood, then the knowledge processes cannot be said to be truly objective, as positivists and modernists believe. As Hatch and Yanow (2003) stated, admitting prior knowledge into the sphere of scientific inquiry implies sources other than the sensory and observable and thus binds meaning with values that are not based on sensory perception.

An interpretive approach, as described by Hatch and Yanow (2003), views that any human act is the projection of human meaning, which is co-created and thus cannot be completely external to the world of the creator, creators, the observer, observers, and/or others. They added that an interpretivist cannot merely observe and record any social phenomena, as a positivist proposes, because meaning must be understood and interpreted. From an interpretive perspective, as Hatch and Yanow (2003) explained, the purpose of the physical sciences is to explain phenomena while the purpose of the social, organizational, and managerial sciences is to understand.

We see, then, that Hatch and Yanow (2003) perceived that an interpretive philosophical approach to the social sciences focuses on meaning in specific situational contexts and on the process

of understanding the particular worlds of the participants. As they described it, it engages the role of language and artifacts in the co-creation of meaning in social relationships and understanding. An interpretivist's epistemology as outlined by Hatch and Yanow (2003), Silva (2007) and Bahari (2010) holds that for the production of legitimate knowledge about the social world, it is required that every researcher should make sense of hidden intentions, acts, language, and objects that are used to co-create the social world of the researcher and subjects. An interpretivist ontology, as outlined by Hatch and Yanow (2003) and Cordella and Shaikh (2006) identifies the interpreter as being a co-constructor of his/her reality in their mind.

Postmodernism

Postmodernism invokes the ideology of a very different kind of science for the study of the social, organizational and managerial phenomena. As Chia (2003) indicated, the term *postmodernism* has been considered from its very beginnings to propagate a certain degree of semantic unstableness, which has prevented consensus on its exact meaning and implications. As he described in a simplistic manner, postmodernism should be thought of as an alternative mental model that aims to more fully capture the incomprehensible complexity of an advanced society. For Bouacida and Al-Khawaldeh (2018) and Chia (2003) the possibility of such a new way of thinking can be attributed to the theory of relativity and the subsequent emergence of quantum theory that not only offered a whole new way of thinking about physics but also a whole new way of thinking that underpins more contemporary efforts to formulate a postmodern science that is more in keeping with the leading-edge advances in theoretical physics.

Chia (2003) argued that it is the design of language itself that creates the impression of a stable, predictable, hierarchal, and law-based world. He insisted that without this act of differentiation -- naming, classification, and ordering -- through the operation of language, social experience is actually a formless and directionless, ever-changing mass. Postmodern analyses, he stated, in opposition to earlier approaches emphasizes the vaguely intuitive, heterogeneous, multifaceted, random walk, and

non-linear character of the social world. A postmodern perspective as Chia (2003) determined, emphasizes that the real world and events in it do not unfold in a linear and ordered process but are alternatively characterized by unpredictability, change, and randomness. Therefore, human action for postmodernists must

> not be simply understood in terms of actors' intentions or even the result of underlying generative mechanisms, but must rather be understood in terms of the unconscious, metaphysical, embedded contextual experience, accumulated memories, entrenched cultural traditions that create and define the very possibilities for interpretation and action. (Chia, 2003, p. 130)

As Chia (2003) stated, this does not suggest a framework of structural determinism in which agency and action are dealt with from a structural perceptive but rather it emphasizes the constant tension and competition between normality and regularity and the circular drive for novelty and innovation. He further explained that every human action for postmodernists is innately experimental, as it is actually the act of reaching out into the uncertain and unknowable. Every consequence, he said, is the product of all the potential possibilities, which are constantly made, and being made "*yet the manner of their specific manifestations remains indeterminate*" (Chia, 2003, p. 130). In other words for postmodernists, as Bouacida and Al-Khawaldeh (2018), Hatch and Cunliffe (2006), Scott & Davis's (2015) and Chia (2003) agreed, the random, unexpected, changeable, and fluid are the real order of reality and not the structured, ordered, and hierarchical as positivists and post-positivists propose.

Chia (2003) said that a postmodern conception proposes that instead of thinking causally about tightly coupled phenomena, we should adopt a deterministic pattern of thought which gives eminence to

> the ideas of reminiscence, resonance, recursion and resemblance as more adequate expressions for describing the loosely coupled and non-locally defined web of event clusters constituting real world happenings. (Chia, 2003, p. 130)

Chia (2003) saw these more recursive and circular thought patterns as more congruent with the language of the complexity sciences. A postmodern approach as described by Hatch and Cunliffe (2006) and Chia (2003) aims to divorce us from our stubbornly held beliefs that reality is objective, stable, orderly, hierarchical, and predictable. They held that postmodern perspectives accordingly provide a very real and plausible alternative to traditional approaches for redefining the focus of study and understanding of social, managerial, and organizational sciences. A postmodernist epistemology, as outlined by Hatch and Cunliffe (2006) and Chia (2003), rejects the idea of verifiable, rational knowledge and replaces this with a relativist conception of the construction of knowledge. Postmodernist ontology as seen by Chia (2003) is an ontology of always in the making, becoming, and being formed.

Pragmatism

The aim of the philosophy of pragmatism as presented by Johnson and Onwuegbuzie, (2004) is to establish a mid-point between extreme philosophical positions in order to develop a practical and applicable solution. They further described pragmatism as a philosophy that advocates the categorical rejection of philosophical polarity, on which agreement has not been historically reached, and instead favors a more practical perspective based on how philosophies can be applied to solving real world problems. As Ethridge (2004) said, pragmatism as a philosophy establishes that the primary concern of inquiry should be the degree to which methods and techniques work in *addressing* the questions of inquiries. According to Mertens (2009), pragmatists accordingly have no objections to believing in the existence of both an objective and identifiable reality and at the same time that all people socially contract their realities. She stated that the results of inquiry for pragmatists are viewed as the critical next steps to producing understandings of consequence, which move the direction of outcomes.

Mertens (2014) explained that pragmatists use the utility of inquiry to assess success rather than evaluating how closely outcomes mirror or align with one's perspective of the external world. As Ethridge (2004) said, for pragmatists the utility of inquiry in addressing a specific question is thus the

only “criteria for judging empirical positions” (Ethridge, 2004, p. 66). This refreshing approach of pragmatism as noted by Mertens (2014) differs vastly from historic philosophical approaches, which in a polar-opposite position emphasized correspondence to reality and the possibility of value-free and objective inquiry. Ethridge (2004), Johnson and Onwuegbuzie, (2004), and Mertens (2014) agreed that pragmatism as a philosophy condones the use of *any* method of inquiry, whether traditionally incompatible or not, to facilitate advancements in our understanding for positive benefit. Shields (1998) and Ethridge (2004) said pragmatism builds an ongoing perspective of the process of inquiry and of knowledge construction, thereby establishing a position in which inquiry and knowledge production are clearly considered to be interrelated and dependent on each other. Shields (1998) asserted that pragmatism accordingly views inquiry as a perpetual process, which gives credence to both the quantitative *and* qualitative components of lived experience as challenges emerge, are recognized, recorded, and addressed. Pragmatism, she said, should primarily be considered as an approach to inquiry that utilizes purposeful human inquiry as its focal point, while the effectiveness of this approach is only judged in relation to its ability to address real world problems.

Pragmatists’ epistemology is based on the assumption that an individual’s perceptions are based on our experience of the world and that each individual has unique experiences and knowledge. While acknowledging the uniqueness of knowledge creation, Shields (1998), Ethridge (2004), Johnson and Onwuegbuzie, (2004), and Mertens (2014) explained that pragmatists do not view knowledge as reality but rather argue that knowledge is constructed and created only for humans in order to manage their experience and to ultimately productively partake in the world we live in. A pragmatic epistemology, then, views knowledge as being both constructed *and* based on the reality of the world we experience and confirms that pragmatic ontology is an ontology of flexibility in which there is no difference between facts and values.

Metamodernism

The idea of metamodernism as a new philosophy and culture movement for a digitalized, postindustrial, and global age is most commonly attributed to the 2010 publication of Robbin van den Akker and Timotheus Vermeulen "Notes on Metamodernism." They described metamodernism as both a reaction to postmodernism and a logic that corresponds to today's digital world. Vermeulen and Van den Akker (2010), Van den Akker, et al. (2017), and Rudrum and Stavris (2015) argued that similar to the way in which modernism was succeeded by the postmodern, we are now in a new state in which postmodern discourses have lost their critical value when it comes to understanding the social world, contemporary arts, culture, economics and politics. According to Van den Akker, et al. (2017) what is required is a new language which adequately describes this new reality as the postmodern is now dead and has been replaced by something which is fundamentally of a different nature. Van den Akker, et al. (2017) asserted that metamodernism "allows us to come to terms with the gap between what we thought we knew and the things we experience in our daily lives" (Van den Akker et al., 2017, p. 3). Rudrum and Stavris (2015) said that metamodernism opposes the postmodern and voices doubts about a postmodernist reality by emphasizing some aspects of positivity in the world. As they explained, metamodernism does not simply relinquish and refute postmodernism but rather simultaneously accepts and disregards the critical aspects of postmodernism.

Vermeulen and Van den Akker (2010) argued that for postmodernist history has ended, while for metamodernists, although history's purpose will never be realized, metamodernists continue as if it exists. They explained that a metamodern discourse is thus inspired by a modern naivety, yet underpinned by postmodern criticality, which continuously commits itself to both the possible and impossible. Based on this argument Vermeulen and Van den Akker (2010) asserted that the modern and postmodern are underpinned by Hegel's idea of *positive idealism,* while the metamodern is based on Kant's *negative idealism*. Metamodernism can therefore, according to them, most appropriately be described as an *as if* mode of thought. Vermeulen and Van den Akker (2010) affirmed that metamodernism forever endeavors to find the truth while at the same time expecting never to find it.

Ontologically, they said, metamodernism proposes that in reality we continually oscillate between the modern and postmodern. Metamodernism, according to this conception, proposes that reality oscillates between the static and dynamic, between enthusiasm and irony, between naivety and knowing, between apathy and empathy, between holism and self-organization, between connectedness and randomness, and between the complicatedness and the complex. Vermeulen and Van den Akker (2010) emphasized that this oscillation is, however, not a balance of concepts as we are most likely to think, but rather like the continuous movement of Foucault's pendulum, swinging among an unknowable number of poles at any one time. As they explained, every time reality swings to randomness, gravity draws it back to connectedness; the moment it sways to enthusiasm, it sways to fanaticism, and so on. Accordingly, metamodernism explains many contradictions and opposing ideological tensions which coexist in our reality today. Metamodernism, according to Vermeulen and Van den Akker (2010), Van den Akker, et al. (2017) and Rudrum and Stavris (2015), proposes an epistemology of *as if* and an ontology of *between* and thus holds that we live in a world which is both and neither objective, observable, socially constructed, dynamic, complex, complicated, changeable, static, structured, hierarchal, connected, evolving, random, and self-organizing. Metamodernism as new philosophy for organization theory thus proposes that social systems are both modern and postmodern while at the same time being neither of them. While metamodernism has never been utilized as philosophical approach for organization theory, it is the contention of this study that it is the most suited philosophy for understanding the dynamics of complex social systems which are both and neither complex, complicated, dynamic and static as alluded to in the argument developed by Andersson and Törnberg (2018).

Summary

The different philosophical positions discussed give relevance and eminence to differing types of knowledge, information, assumptions, and modes of thinking. Some of the primary contrasts between the differing philosophical positions are listed in the Table 1.4:

Table 1.4

Contrasts among Philosophical Positions

	Positivist / Modernist	Marxist	Inter-pretavist	Post-modernist	Pragmatic	Meta- modern
Reality is	Pre-existing	Pre-existing	Socially constructed diversity	Constantly shifting and fluid plurality	Reality is constantly renegotiated, debated and interpreted	Pre-existing, constantly shifting & socially constructed
Knowledge is believed to be	Universal	Provisional & meditated by social aspects	Particular	Provisional	Universal and particular	Universal & provisional
Knowledge is developed through	Facts & information	Bringing focus to the real experiences of the oppressed	Meaning and interpretation	Exposure and experience	Human experience	Facts & information & exposure & experience
Knowledge is recognized via	Convergence	Practice	Coherence	Incoherence, fragmentation and deconstruction	Practical consequence	Convergence, deconstruction & practical consequence
Model for Human relationships	Hierarchy	Hierarchy	Community	Self determination	Community	Hierarchy, community, self determination
Overarching goal	Prediction & control	Radical change	Understanding	Freedom	Transformation of a problematic situation	Prediction & control, understanding & transformation

Source: Adapted from Hatch, M. J., & Cunliffe, A. L. (2006) Organization Theory: Modern, Symbolic and Postmodern Perspectives and Kaushik, V., & Walsh, C. A. (2019). “Pragmatism as a Research Paradigm and Its Implications for Social Work Research,” Social Sciences, 8(9), 255.

As Hatch and Cunliffe (2006) explained, the interpretivist and postmodern perspectives are openly concerned with the way individuals think about reality and generate knowledge, whereas the positivist perspectives take these issues for granted. The interpretivist and postmodern perspectives are important because they provide the foundation for theories that study how social realties are constructed, how meaning is made, and how activities within social systems are coordinated. Positivist perspectives are important for Hatch and Cunliffe (2006) because they provide the foundation for a number of analytical frameworks, predictive models, and principles for organizing that are used to

diagnose problems and design organizations. A Marxist perspective is also important because it forms the foundation for critical theories that openly examine some of the controlling, bureaucratic, and dominating aspects of social systems and organization. Finally, metamodernism is potentially important because it provides a new basis for understanding complexity and social systems that operate in systems states that are both highly complex and complicated in nature. As Scott and Davis (2015) said, the range of competing philosophical perspectives challenges differing basic assumptions and ideas about reality, indicating that some philosophical foundations may be more applicable to specific states, contexts, domains, and problems in social systems than others. While for Astley and Van de Ven (1983) it is clear that the juxtaposition of the differing philosophical perspectives brings into view the contrasting worldviews that underlie the major debates regarding social systems. Chapter 4 identifies, explores, and explains these worldviews.

CHAPTER 4: LITERATURE REVIEW III: WORLDVIEWS

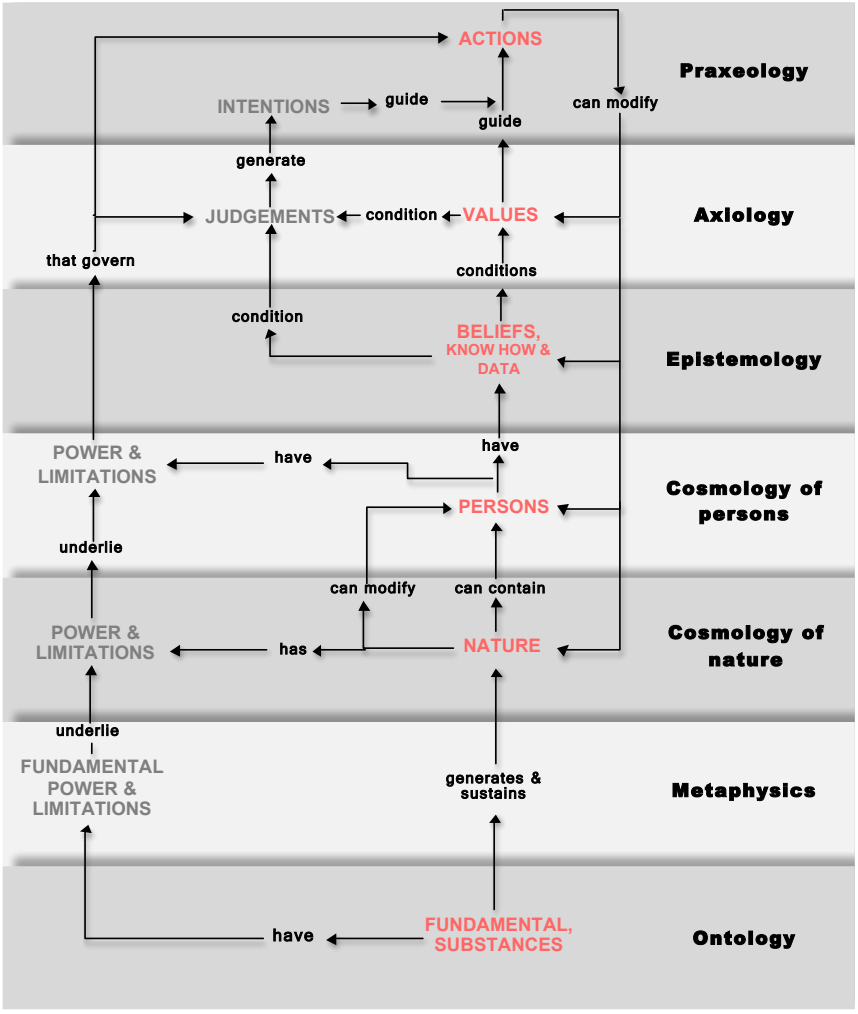
Chapter 2 and Chapter 3 presented a summary of the most important literature on sense making and the underlying philosophies which shape how we respond to world around us. Sense making as a critical process for understanding and responding to the world was shown to be reliant on our philosophical assumptions about the world. Worldviews, which collectively describe these beliefs, provide the basic assumptions, concepts, building blocks, and propositions that orient our thinking when responding to the world were not specifically addressed.

Worldview

"Worldview" immediately brings to mind an individual's or a society's beliefs, values, and shared cultural experiences. Rousseau and Billingham (2018) argued that a worldview is not simply a conceptual philosophical system but is also a reality map for providing a view of actual reality. The components of a worldview and the aspects of social systems they represent are depicted in Figure 1.10.

Figure 1.10

Correspondences Model of Worldview



Source: Adapted from Rousseau, D., and Billingham, J., (2018), "A Systematic Framework for Exploring Worldviews and its Generalization as a Multi-Purpose Inquiry Framework," Systems, 6(3), 27.

A worldview, as Rousseau and Billingham (2018) saw it, goes further than a philosophy by providing both a model and structure of coherence for the real world.

As Rousseau and Billingham (2018) explained, the right side of Figure 1.10 depicts the fundamental building blocks of a person's worldview; the left side highlights some of the aspects and interdependencies with the real world, which they represent. This model is clearly a simplification of

how worldviews might function as reality maps and guides for action, but Rousseau and Billingham (2018) argued it is sufficient for understanding how worldviews function as a blueprint or cognitive map for understanding and responding to the social world. The model first indicates how worldviews influence the behavior of people. As they pointed out, the model suggests that actions are dependent upon judgments, which are influenced by values, which are ultimately determined by "beliefs about the nature of people and" of reality (Rousseau and Billingham, 2018, p. 12). The significant implication, they argued "is that people's values" are determined by their "ontological and metaphysical beliefs" (Rousseau and Billingham, 2018, p. 12). As they indicated, this is significant because it demonstrates that differing worldviews will create a sequence of divergent beliefs, values, judgments, and responses to social systems based on the differing philosophical perspectives about ultimate reality which underpin the differing worldviews. In summary, the model proposes a worldview (provides a cognitive map) for humans which *influences* → beliefs they hold to be true about reality which *influences* → values (what they should/ought to do) which *influences* → judgments (what they decide to do) which *influences* → actions (what behaviors/responses they give) in social systems. Second, because the model ultimately strives for coherence, it becomes clear why the stability of a single worldview perspective may become dominant in the thinking of individuals. Despite the focus on ontology, epistemology, axiology, and praxeology above, it is important to remember that a worldview is not just an abstract entity, as every person has a worldview even if they cannot articulate it. What is of importance is the core content of any worldview, which essentially portrays an ongoing struggle between different competing insights about reality. Rather than perceiving a worldview as an enduring epistemological stance we should rather view a worldview as *dynamic systems of beliefs* which direct cognitive understanding, impose order, and direct how we respond to reality.

Morgan (2006) showed that we often regard worldviews only as devices for establishing conversation about social systems. In reality, he emphasized, they are much more important because they actually frame both the ways that humans think about social systems and the ways that humans

perceive social systems and thus the understandings which humans build of their reality. Morgan (2006) argued that worldviews actually exert a formative influence on the world and on individuals, influencing everything from the language that humans use, the way that they think, and even how they respond on a day-to-day basis. A worldview, he argued, can most simplistically be thought of simply as *the reality map which humans use to understand one element of lived experience in relation to another*. Any worldview accordingly contains both implicit and explicit assumptions, he explained, that help humans to determine if *(x)* is *(y)*, similar to *(y)*, or different from *(y)*. To fulfill this role, a worldview, according to Vidal (2008), addresses the following:

(a) It provides a model of reality, which explains the nature of the world (*what the world is*).

(b) It provides an explanation either implicitly or explicitly of how this world was created (*explanatory principles which explain where it all comes from*).

(c) Instead of focusing on the past, it provides a framework either implicitly or explicitly for understanding how the world may develop (*possible framework for understanding the future*).

(d) An implicit or explicit framework which acts as a guide for actions (*guide for actions in this world*)

(e) An implicit or explicit set of principles which organize actions to solve problems (*principles which organize actions*)

(f) Last, an image of what the world is and what it looks like. This image can be created only by addressing (a) to (c).

A worldview as a dynamic system of beliefs emerges from the interplay of what the world is perceived to be, how this perceived reality is explained, the framework used to understand possible future events, the framework that guides actions in this perceived reality, the principles that organize actions, and finally the image that is emergent from this interplay. Worldviews influence everything from

mindset to values and actions. As Itkin and Nagy (2014) and Morgan (2006) argued, worldviews are thus powerful cognitive instruments that guide sense making, meaning, and interpretation that subsequently guide actions. Itkin and Nagy (2014) further said that worldviews help humans to create reality maps that assist social systems participants to interpret social reality. Morgan (2006) argued that creating differing reality maps could help humans contextualize their own social reality in new and innovative ways.

Having summarized the major philosophical positions that underpin differing worldviews for sense making, the focus of the discussion will now move to the primary meta worldviews. Meta worldview simply refers to broadly delineated worldviews which have been used by individuals, researchers, scholars, and practitioners for mapping social systems and responding to organizational and social problems from the different philosophical positions. Each worldview is linked to its philosophical base.

Worldview with a Positivist Foundation

As Hatch and Cunliffe (2006) indicated, positivists emphasize that organizations are real, objective entities operating in a real and objective world. Table 1.5 describes the primary positivist-based worldview of social systems:

Table 1.5

Properties of a Mechanistic Worldview

Worldview	Description
Mechanistic worldview	Morgan (2006) said that a mechanistic worldview implies thinking about organizations, social interaction, and man as machines made up of interconnected parts, with each part playing a clear and unambiguous role in the functioning of the whole. As Liening (2013) stated, the most important principles of the mechanistic worldview are based on Newtonian mechanics and the principles of determinism, reversibility, strong causality, and the assumption that the whole consists of the sum of its parts. Based on Newton's principles, it is possible to model the movement of bodies in space and time. A mechanistic worldview also implies that these principles are equally applicable to organizations and social interaction. Based on these assumptions, Liening (2013) discussed the mechanistic worldview, developing the idea that any state at any given time (future, past, or present) can be determined if the initial conditions are known. The

	mechanistic worldview, as he described it, accordingly builds an entirely deterministic model for understanding the social world, organizations, and social interaction. According to Liening (2013), it implies that the same causes will always give rise to the same effects. Another defining principle of this mechanistic worldview is the idea that all problems can be deconstructed into smaller sub-problems. This idea, he argued, gives rise to the notion that the whole consists of the sum of its parts. In essence, the mechanistic worldview proposes that all problems can be deconstructed into the simple individual objects and forces that give rise to the initial problem. As Liening (2013) explained, this has given rise to a worldview that sees all organization and social interaction as closed systems and as linear in nature. Closed, linear systems, he pointed out, give rise to the defining characteristics of a mechanistic worldview of determinism, strong causality, and the assumption that any social system merely is the sum of its individual parts. Morgan (2006) found the mechanistic worldview accordingly appropriate when tasks are simple, environmental influence is minimal, and where stability, predictability, and precision is paramount. Despite its advantages, a mechanistic worldview for Morgan (2006) also has significant disadvantages in that it tends to create unnecessary conformity and difficulties in responding to change.

As Scott and Davis (2015) asserted, a mechanistic worldview emphasizes the grand narrative that organization and society should be regarded as well-designed machines that consist of a series of interrelated means which are contrived to achieve a single, goal-oriented end. They argued that a mechanistic worldview places great emphasis on control and the determination of behavior by either obtrusive or unobtrusive means. It also largely ignores the effects of larger social, cultural, and technological contexts by considering only linear and closed systems. This worldview thus concentrates on internal features of any system and largely ignores any environmental context. It also develops an additive reductive logic of social systems by proposing that all problems can be reduced through reductionism into smaller sub problems, which collectively result in the larger problem. The Newtonian viewpoint of this worldview for Scott and Davis (2015) fundamentally creates a reality map that views social interaction, organization, and humans as a structure of malleable parts, each of which is separately modifiable with a view to enhancing the efficiency of the whole. The individual elements, they said, are accordingly viewed as subject to planned modification enacted by deliberate and conscious decisions with no consideration of any environmental influence.

Worldviews with a Modernist Foundation

Worldviews which are based on modernist philosophy propose that all social systems interact freely with their environments. As Chia (2003) argued, from a modernist viewpoint, social systems have the capacity to influence the external environment while at the same time being influenced by their environment. Table 1.6 lists and describes the primary worldviews of social systems that have been developed on a modernist foundation:

Table 1.6

Worldviews Based on Modernism

Worldview	Description
Cybernetic worldview	Boulding (1956) and Hatch and Cunliffe (2006) said a modernist cybernetic worldview emphasizes the importance of control mechanisms and hence feedback loops. A cybernetic worldview develops a reality map of social systems consisting of inputs, transformation processes, and outputs that are connected to the environment through a feedback loop circling back to the systems inputs from the outputs. A cybernetic worldview, as Boulding (1956), Hatch and Cunliffe (2006), and Vahidi, Aliahmadi and Teimoury (2019) asserted, holds that social systems strive to maintain a given equilibrium with their environment. Scott and Davis (2015) argued that this stresses the significance and importance of policy, control, operations, and feedback, and the importance of the interconnections of process and information that flows among them in social systems. They further affirmed that a cybernetic worldview places significant emphasis on the operational level of social systems, the level at which actions occur. They discussed the analysis of the technical flows, process, inputs, throughputs, and outputs at an operational level that they regarded as a critical component to developing an understanding of social systems from a cybernetic perspective. Scott and Davis (2015) and Weick (1976) emphasized that a cybernetic worldview gives rise to notions of tightly coupled social systems that are highly causal and constitute an arrangement of parts, components, and subsystems that are hyper sensitive to changes in each other and in the operational environment. While Scott and Davis (2015) pointed out this can certainly be found within social systems, care should be taken not to over generalize this notion to all social systems.
Open systems worldview	Scott and Davis (2015) said that an open systems worldview holds that social systems are self-maintaining structures. Self-maintenance, they pointed out, is based on the notion of throughput of resources from the system's environment, which is vital to the system's viability and sustainability. The open systems worldview according to Scott and Davis's (2015) and Morgan's (2006) description asserted that social systems are capable of self-maintenance by transforming their environmental inputs into products, services, waste products, and resources to repair and replace elements, components, subsystems, and parts in such a way that they prolong and extend the survival of the system as a whole.

	The cybernetic worldview, in contrast, as described by Scott and Davis (2015), proposes that social systems receive inputs from their environment which are then transformed into products, services, and waste products. They are not, however, capable of transforming these environmental inputs into resources to replace or repair their own elements, components, parts, or subsystems. Cybernetic systems cannot maintain themselves and can therefore not be regarded as true open systems despite the fact that they interact with and take cognizance of their external environment and its impact. An open systems worldview, Scott and Davis (2015) argued, recognizes that the environment in which a social system functions shapes, supports, and infiltrates the system leading to critical external connections and linkages which can often be more important than the organization's internal linkages and connections. As Hatch and Cunliffe (2006) explained, the open systems worldview builds a reality map of social systems nested within larger systems. They argued that the open systems worldview stresses that in order to understand, analyze, and model social systems, one must consider not only the internal components of the system but also the external context in which the system functions. Scott and Davis (2015) indicated that this perspective has been identified as "rationalism" which essentially counters reductionism by suggesting that managers, researchers, and scholars need to look outside an entity to its environment and its higher system in which it is embedded in order to explain and understand its behavior. For Scott and Davis (2015) the primary contribution of the open systems worldview is the significance which is placed on the wider external environment in which social systems function.
Organismic worldview	According to Morgan (2006), the organismic worldview involves thinking about social systems as living, biological systems. The organismic worldview focuses on social systems requirements and environmental relations. For Morgan (2006) the organism metaphor explains how social systems are born, grow, develop, age, and reach the end on their life and how they adapt to changing environments such as new social change, innovation, or political shifts. Morgan (2006) argued that this worldview is dependent on two primary concepts: (a) *Contingency Theory*, which deals with the processes of adaptation of systems to an external environment, and (b) with *Natural Selection* and the ideas of Darwinism. Morgan (2006) focused attention on the idea that social systems function in an interconnected web of social systems. All social systems, from the organismic worldview, thus function as part of an interconnected web of systems and not as individual social systems. This worldview also embraces evolutionary concepts, similar to the open systems worldview, that social systems both affect and are affected by their environments. The main advantages of the organismic worldview for Morgan (2006) are that it recognizes social systems' dependence on an external environment and its emphasis on social system processes, innovation, and adaptation due to the primary goal of survival.
Social systems worldview	For Ackoff (1999) and Ackoff and Gharajedaghi (2003) the social systems worldview proposes that with very few exceptions, all social systems are part of other social systems. For example, they described corporations as part of the social systems which also include universities, clubs, and government to name only a few. From this worldview, social systems also contain organismic and mechanistic systems, according to Ackoff (1999). Knodt (1995) and Luhmann (1995) said that in the social systems worldview, each of these systems is capable of self-replication and adaptation and that the connections between the sub-systems of social systems are composed of communication. For Ackoff (1999) an important distinguishing factor of the social systems worldview is that it proposes that all social systems are made up of parts that are purposeful, like human beings, and that the systems themselves are also purposeful in their own capacity. The social system worldview accordingly emphasizes the idea of choice and rationality and the idea that the individual components of the systems are connected by communication,

	symbols, artifacts, and linguistics. Ackoff (1999) stated that the social systems worldview sees social systems as distinct subsystems of nature.
Socio-technical worldview	Bostrom and Heinen (1977) and Hirschhorn, Noble and Rankin (2001) asserted that the socio-technical worldview, in opposition to the other modernist worldviews, emphasizes that social systems should be conceptualized as a socio-technical system, thereby implying that social systems consist of two independent yet still correlated, interacting and joint systems, namely the social and the technical. Technical systems, according to Trist's (1981) description, are concerned with the processes, tasks, and technology required to transform inputs into outputs, while the social system is concerned with the attributes of humans and thus values, attitudes, skill, the relationships among people, and their attitudes towards the system, authority, and structures. Bostrom and Heinen (1977) and Hirschhorn, et al. (2001) said that it is assumed from a socio-technical worldview that the outputs of a social system are the product and output of the interactions between the two systems. The socio-technical worldview, in opposition to the other worldviews, considers the impact of both the social systems and technical system on the psychological needs of individuals and therefore, for the first time, emphasizes humanist attributes such as teamwork, multi-skilling, and self-management. For Hatch and Cunliffe (2006), the success of social systems from this perspective depends on the adaptability of each subsystem or group to address challenges and to integrate with other subsystems and the whole system. Hatch and Cunliffe (2006) determined that in opposition to other approaches, a socio-technical worldview focuses attention on a number of humanistic issues involved in social systems, including, for example, social and psychological consequences, the importance of the collective compared to the interest of the individual, and the need for the division of labor that values increasing rather than decreasing the variety of work-based skills and tasks of individuals.
Learning systems worldview	Morgan (2006) described the learning systems worldview as one that emphasizes the idea that social systems should be thought of as learning systems that are directed to control and coordinate the activities of autonomous subsystems. He stated that this worldview draws attention to the ideas about information processes, knowledge management, communication, and decision-making. Morgan (2006) drew attention to two important ideas: (a) the notion that social systems are capable of learning to learn, and (b) that any part of a social system could potentially stand for and represent the whole system. The learning system worldview that he described evokes images and thoughts of social systems as an institutional thinking machine that fragments, routinizes, and bounds decision making in order to make it feasible in a social system. For example, an organizational chart from a learning system worldview not only indicates the hierarchy of an organization's social systems but also defines the structure of work, attention, interpretation, and ultimately the decision-making process. The learning systems worldview he described ultimately proposes that social systems could potentially change structurally, to cope with either uncertainty or information overload, by changing the social structure. The learning system worldview proposes the notion of self-organization in social systems.
Ecological systems worldview	In opposition to social systems worldviews, Ackoff (1999) described the ecological systems worldview, proposing that ecological systems have no purpose of their own. While ecological systems consist of both organismic and social systems, they function to support the survival of the social and organismic systems. The ecological systems worldview thus proposes the idea that social systems are distinct entities that are different from natural systems. Nature contains social systems, as Baum and Shipilov (2006) noted, and social systems by themselves have purpose. The typical example is nature, which is an ecological system which has no purpose of its own of which people form a part which are social systems which have purpose.

Worldviews described in Table 1.13 are based on the philosophical principles of modernism and are heavily influenced by the concepts, models and principles of General Systems Theory. Von Bertalanffy (1968) pointed out that the advancement of systems ideas may now appear to be obvious, but it does represent a significant transformation and shift in thinking in comparison to the earlier mechanistic approach. As Jackson (2001; 2006; 2020; 2021) said, a systems approach has become a necessity in many areas of thought, as it has become necessary to confront wholeness, not only a reductionist notion of individual parts which a mechanistic worldview champions. For Von Bertalanffy (1950) a system was simply a highly-differentiated whole that is constituted of specialized subsystems or parts. These sub-systems perform specialized tasks that contribute to the function of the whole, and through their interdependent relationships, produce features, characteristics, and elements that are unique and whose output is greater than the sum of their constituent parts. As Hatch and Cunliffe (2006) explained, this differentiation of specialized subsystems and parts of the system ensures that the system capitalizes on the benefits of specialization at subsystem level, thus creating efficiency, and optimizing the inputs and resources of the system. Specialization at the subsystem level also creates the need for integration at the larger systems level. Diverging diametrically from a mechanistic approach, Hatch and Cunliffe (2006) asserted that to understand a system, one must analyze, synthesize, or integrate the components of the system while also transcending the view of the individual parts in order to consider the entire system at its own level. They argued that worldviews that are based on modernist principles therefore advocate that complete knowledge of social systems means understanding how and why they function as a whole and how the functioning of these systems is influenced and impacted by their external environment. Consequently, for Hatch and Cunliffe (2006), modernist-based worldviews specifically build a perspective of social systems as whole entities that are able to develop core competencies, adapt to environmental change, balance internal and external pressures, and increase efficiency and effectiveness.

The rich and varied insights proposed by the differing modernist-based worldviews discussed in Table 1.6 emphasize some important commonalties and defining characteristics of modernist-oriented worldviews. The worldviews described in Table 1.6 first propose the idea that social systems are distinct and identifiable units with identifiable boundaries. Examples from a modernist point of view include social systems such as organizations, governments, and communities that are viewed as independent and identifiable entities. These entities, as Chia (2003) explained, are also considered to have causal power, implying that each entity exerts an effect that cannot be attributed to the individual components that make up these systems. The modernist-based worldviews described in Table 1.6 accordingly build a view of causality separated by space and time, building causal models of social systems. Hatch and Cunliffe (2006) noted that modernist-based worldviews of social systems develop narratives or general theories that aim to explain myriad aspects of social reality. The modernist-based worldviews described in Table 1.6 therefore develop a structural understanding of the complicatedness of the social world. In doing so these worldviews emphasize the interconnected, multi-dimensional, and hierarchal aspects of social reality which humans can easily relate to in the process of sense making. The modernist-based worldviews described in Table 1.6 propagate the idea and understanding of the complicatedness of social systems that arise from their highly interconnected, multi-dimensional, and structurally complex nature.

Worldviews with a Marxist Foundation

Worldviews with a Marxist foundation propose that all social systems contain inherent contradictions and that in a class-divided world, this leads to new forms of control and domination in social systems. Worldviews with a Marxist foundation are primarily focused on interpreting the world from the perspective of changing it, and therefore are focused on constructing an image of the world, which is fundamentally different from the current image. Table 1.7 lists and describes two worldviews which have been founded on a Marxist philosophical foundation:

Table 1.7

Worldviews Based on Marxism

Worldview	Description
Psychic prison worldview	The psychic prison worldview proposes the idea that social systems are "ultimately created and sustained by conscious and unconscious processes, with the notion that people actually become imprisoned in or confined by the images, ideas, thoughts, and actions to which these processes give rise" (Morgan, G., 2006, p. 207). As Shahzad (2012) and Morgan (2006) affirmed, this conception emphasizes the socially constructed nature of social systems but also alludes to the idea that social constructions may in themselves have a degree of power, exercising control over their creators. For Morgan (2006) this process is best explained by understanding that people can construct their reality and truth from only their own perspective and experience. As he explained, it is difficult for people to find meaning in any new knowledge if they have no context for it, making them more likely to persist with their old ways. For example, if you have lived in North Korea for your whole life without any western media and a stranger told you for the first time about the freedoms in democratic societies in the world, it would in all likelihood be difficult for you to attribute any meaning to that knowledge. This, Morgan (2006) said, is precisely the psychic prison which can develop in social systems. Human participants in social systems are trapped by their preferred ways of thinking and ultimately by unconscious processes in social systems. As Örtenblad, Putnam, and Trehan, (2016) described it, the psychic prison worldview relies heavily on psychoanalytical theories of the psyche and the unconscious to explain the ways that social systems entrap their members. The psychic prison worldview makes significant contributions to understanding the resistance to change in any social system. This worldview, Morgan (2006) noted, emphasizes the importance of both the creative and destructive aspects of the unconscious mind and gives credence to a dualistic view that both rational and irrational phenomena are linked and part of the same meta process within social systems. It is a powerful worldview for Morgan (2006), because it encourages thinking of how we might be caught in our own self-containing environments. The psychic prison worldview builds a reality map which proposes that what we see and experience in social systems is not independent and real but rather that we are imprisoned by the ideas, language, concepts, culture and beliefs that we use to construct our social reality. The psychic prison worldview proposes that what we experience is not real and independent but a limited and constrained social construction of our reality.
Domination worldview	According to Cobo, Rocha, Vanti, and Schneider (2012) the domination worldview emphasizes the attachment that humans have to different types of social systems and the role that power plays in these systems. The primary premise of the domination worldview is that the tensions between capitalist and socialist interests in society create an environment in which capitalist interests keep the other group enslaved in a contemporary system of slavery. As Örtenblad, et al. (2016) asserted, this worldview relies heavily on concepts from Marxism and critical theory to showcase how exploitation and disproportionate power distributions occur in social systems. The domination worldview, as Morgan (2006) argued, is important because it highlights how social systems can be oppressive and exploitive. It also shows how actions which may be interpreted as rational by leaders in one social system may be considered exploitive by members of another social system. While the domination worldview may appear to be similar to the political worldview, it actually emphasizes the moral and ethical pitfalls of social systems. Domination, Morgan (2006) said, is enforced in different types of social systems in different ways. For example, in corporate organizations, domination is

	exemplified by exploitation of workers for commercial profits. In society, institutionalization leads to the marginalization and discrimination against minority groups, and at an even larger scale, the international economic system leads to the domination of first world economies over emerging economies. Cooper (1990) expanded on this perspective by simply stating that information itself is dominance, as it privileges one position over another, exerting power by discounting the alternative. The domination worldview accordingly builds a reality map of social systems as instruments of domination in which power is exerted to serve the interests of the dominant, which are veiled under the guise of rationality. The domination worldview, while being predominately negative, draws attention to the ethical considerations of the social world.

The psychic prison and domination worldviews outlined in Table 1.7 stress the view that social systems are characterized by control and domination and that system participants do not control these forces; they are, rather, controlled by them. Both the psychic prison and domination worldviews propose that the real nature of social systems is concealed, as they are designed to control and dominate. Both worldviews accordingly allude to the idea that our ability to think clearly about any social systems and to initiate change in social systems, therefore depends on our ability to distance ourselves from the control they exert over participants. From this perspective, it can easily be explained why seemingly rational choices have produced many of the dominating and controlling characteristics of contemporary social systems.

Worldviews with an Interpretive Foundation

Worldviews with an interpretative philosophical foundation propose that human social activity constructs the world, and in the process, humans externalize meanings as both personal and shared realities. Table 1.8 lists and describes the two worldviews with an interpretive foundation:

Table 1.8

Worldviews Based on Interpretivism

Worldview	Description
Cultural worldview	The cultural worldview, Morgan (2006) explained, implies cognitively conceptualizing social systems in terms of the norms, values, rituals, beliefs, and patterns that create shared meanings that in turn direct social system functioning. As he said, the cultural worldview builds a view of social systems as residing in the "shared systems of meaning, hence in the actions and interpretive schemes that create and re-create that meaning" (Morgan, G. 2006, p.142). Culture, as Griffin, (2006) described it, consists of webs of

	meaning that are created by the human participants in the systems. Further, he said, this worldview is thus concerned with both culture and the act of culture creation, which is inherently a human activity. Griffin, (2006) argued that culture is ultimately created by communication, which both forms the social world and is also its principal constituent. For Morgan (2006) the culture creation processes is a never-ending pursuit in social systems, as conscious attempts are continuously required in which people share meanings and experiences in order to gain insights for action. As he said, this has enormous implications for how we think of social systems because it emphasizes that we must root our understanding of social systems in the process of culture creation that produces shared meanings. He noted that even the most rational aspects of social systems are embedded with social constructions including formalization, hierarchies, rules, and routines that are critical for understanding social systems in our day-to-day lives. It is precisely these *cultural artifacts* that model the unfolding reality from a cultural worldview perspective in social systems (Morgan, G. 2006, p.139). This worldview builds a reality map of social systems as consisting of separate and identifiable cultures in which the meaning of things is constantly shared and co-created among the members of the social system. As Morgan (2006) discussed, this worldview focuses our attention on human participants of social systems and the motivation for their behaviors. It also, he said, draws attention to the need to manage culture in social systems and particularly the impact of sub-cultures while also emphasizing that power is important in impacting social systems' performance and not necessarily only formalized sources of power. Change is thus viewed as a cultural phenomenon for the cultural worldview perspective, emphasizing the importance of values and constructed meaning over the reorganization of the social systems. According to Morgan (2006) this worldview makes significant contributions to empowering humans in social systems by demanding that people take responsibility for the socially constructed nature of their reality.
Political worldview	As Zaleznik (1970) said, one cannot ignore the fact that social systems are highly political, as they operate by allocating authority and establishing the foundations for the operation of power. For Morgan (2006) the political worldview emphasizes thinking about social systems as the platforms for political interplay. He asserted that this worldview is based on the view that social systems are made up of groups of individuals who must be managed and controlled in order to fulfill a specific purpose. Six forms of government are used by Morgan (2006) to describe how social systems operate as political systems: (a) autocracy, (b) bureaucracy, (c) technocracy, (d) co-determination (rule by coalition), (e) represented democracy, and (f) direct democracy (decision making by all members of any group). He indicated that in practice, no one form of government could be used to govern exclusively and that in all likelihood, differing combinations must exist in all social systems. In analyzing the political worldview, Morgan (2006) focused on the interplay of three primary dynamics in politics, namely (differing) interest, conflict (over resources), and (autonomy to exert) power. Politics, he said, emerges in the tensions that manifest themselves in the differences between individual interest, conflict, and power. The political worldview based on these assertions builds a focus on interest, conflicting interest, and the use of power to resolve social system conflicts. In the political worldview, all social systems, functions, actions, and processes are based on the operation of interest, which implies that all spheres of social systems, for example, structure, technology, and strategies, have political dimensions. Because the political worldview focuses on individual interest and the understanding of individuals, it also emphasizes the social-constructed view of social systems functioning.

The cultural and political worldviews stress the position that the same human actions in any system have fundamentally different meanings for different individual subjects within social systems, as

well as for observers of the phenomena. Observers of social phenomena must also, along with other actions, interpret this empirical reality in terms of what it means to the observed in the analysis of social systems. The cultural and political worldviews in opposition to worldviews with a positivist and modernist philosophical foundation accept inter-subjectively created meanings as an integral part of social systems. For example, worldviews with an interpretive philosophical foundation focus on collecting facts and data describing not only what is thought to be objective and publicly visible aspects of human behavior but also the meaning that this behavior has for the subjects. The cultural and political worldviews are more human-centric than other worldviews in their orientation to social systems, and they stress the importance of interests, language, artifacts, rituals, and culture in making sense of and responding to social challenges. They develop reality maps of social systems, which are inter-subjectively focused, stressing the importance of humanistic aspects of social systems, organization, and cooperation. Worldviews with an interpretive philosophical foundation stress the human aspects of social systems by also giving eminence to structural aspects similar to modernist worldviews. This observation is supported by the logic that if you give eminence to human construction, then you also imply that another layer of division exists between that which is causal and that which occurs at the human level. Thus, the cultural and political worldviews broaden the idea of structural complexity and the complicatedness of the social world by adding another level to its multi-dimensional nature. Accordingly, worldviews with an interpretive foundation broaden and deepen the understanding of human participants in sense making by building an even more structurally complex understanding of social reality and complicatedness than what was proposed by modernists.

Worldviews with a Postmodernist Foundation

Postmodern worldviews propose a radical new way for understanding and thinking about social systems. They expand our understanding by critically examining some of the more abstract aspects of social reality that shape cognitive patterns of thought, self-identity, perception, values, beliefs and aspirations. In this way postmodern worldviews bring to the fore the need to be more connected to

underlying societal forces, social moods, and capacities that shape our social reality. Table 1.9 lists and describes the primary postmodern worldviews, which have been developed to understand our reality:

Table 1.9

Worldviews Based on Postmodernism

Worldview	Description
Flux and transformation worldview	The flux and transformation worldview is based on the assumption that the universe, both physical and social, is in a continuous, dynamic state of motion and change. Morgan (2006) described this worldview by building a cognitive metaphor of social systems as whirlpools in a dynamic, fast-moving body of water. He asserted that the very nature of this structure is change, movement, and dynamics, as any whirlpool will cease to exist if the movement of water stops. By definition he proposed the very idea that any form of social system is directly linked by this worldview to incessant movement, transformation, and flow of the universe. Chia (2003) argued that the flux and transformation worldview emphasizes that social systems are in a constant state of change, movement, and dynamic flow of reality. It is, then, the constructive counter-movement to that reality in our minds that is aimed at fixing, ordering, routinizing, and regularizing the dynamic flow of lived experience so that we as humans can attain a degree of predictability in an otherwise constantly shifting reality. For Morgan (2006), the flux and transformation worldview, while being world-making, prohibits the breaking down of social systems into discrete identifiable elements and instead focuses our attention on the *processes* that produce these elements. Morgan (2006) explained the flux and transformation of social systems and the facilitation of the dynamic state of reality by applying the logic of complexity theory to social systems. The flux and transformation worldview accordingly conceptualizes social systems as complex adaptive systems that are capable of self-replication and novelty characterized by non-linear dynamics. He asserted that the logic of complexity and chaos theory explores the concepts of chaos and randomness and situations where point attractors influence complex systems. Point attractors can have dynamic impacts by either pulling systems towards them or by repelling them, moving systems into or out of equilibrium or shifting them to another state of functioning. Morgan (2006) explained that complex systems are always evolving and changing as chaos gives way to order and vice versa. As Morgan (2006) and Šarloši, Bocko and Surovec, (2014) indicated, many chaotic systems are in fact deterministic systems that evolve and change through phases of instability and chaos to establish new relationships. As Morgan (2006), Chia (2003) and Šarloši, et al. (2014) determined, change and emergence are the natural state of affairs when one deals with complex social systems from a flux and transformation worldview. To explain how the flux and transformation worldview deals with the juxtaposition of both deterministic and chaotic social systems, Morgan (2006) used the logic of *dialectical change*. Simply put, chaos can create order in social systems in certain situations, while order can also lead to chaos in social systems. The flux and transformation worldview clearly builds a reality map in which it becomes easier to understand the forces of change within social systems as well as the random nature of the world. It also emphasizes that patterns are important, as patterns and structures emerge, develop, and are destroyed as complex adaptive social systems move through a constantly evolving landscape. Causality in the flux and transformation worldview is non-linear, implying that causes could have unintended consequences and effects that are often contradictory. Many aspects of social systems can easily be understood when

	viewed from the flux and transformation worldview and its complex adaptive view of social systems.
Socio-ecological worldview	Preiser, Biggs, De Vos and Folke (2018) argued that the socio-ecological worldview, in comparison to earlier modernist worldviews, recognizes that living systems function in far-from-equilibrium conditions. In so recognizing, a socio-ecological worldview, as Preiser et al. (2018) explained, rejects the idea that social systems are external drivers of the ecosystems and also the view that natural systems are non-dynamic resources that must be mined for capital gains, which form the basis for economic existence. The socio-ecological worldview, according to Preiser et al. (2018), in opposition to earlier modernist worldviews, proposed that human systems and ecological systems are integrated, complex adaptive systems and inseparable ontological entities. The organizing principles of this socio-ecological worldview, as they explained it, proposes (a) that the world is constituted relationally (b) that the world has adaptive capacities (c) that any behavior in the world is the manifestation of dynamic properties (d) that the world is radically open (e) that the world must be contextually defined, and (f) that novel features in the world are constantly created through complex causality. As Preiser et al. (2018) asserted, the socio-ecological worldview proposes the idea that complexity is omnipresent in the world and that no framework exists or can be created that allows for objective engagement in social systems. They further affirmed that all knowledge from the socio-ecological worldview is thus provisional, but that at the same time, it has the potential to challenge all traditional exploitive knowledge, practices, and methods.

Worldviews that are founded on the postmodern philosophical foundation are focused on attacking many of the foundational principles of modernism. As Best and Kellner (1991) pointed out, modernist- based worldviews have created a viewpoint of the social world that is focused on the processes of individualization, secularization, industrialization, culture differentiation, commodification, urbanization, bureaucratization, and rationalization which together constitute the modernist world. As Best and Kelmer (1991) argued, in favor of postmodernism, the modernists, in opposition to the goals of enlightenment (liberation, freedom, rationality and order) rather created misery and untold suffering for people while obscuring the true nature of the social world which is unordered and unpredictable. Best and Kellner (1991) indicated that postmodernists refer to these phenomena as the “dialectic of enlightenment” which describes the process whereby reason and modernity’s promise of liberation has instead turned into the opposite, masking forms of domination, oppression, and ultimately the random and ever moving nature of social reality (Best, S., & Kellner, D. 1991, p. 220). Social systems in worldviews based on postmodernist foundations are plainly reality construction mechanisms that enable the carving out of an otherwise amorphous life world into manageable parts in order to facilitate

interpretation and understanding. Worldviews based on postmodernist foundations build an understanding of the world based on dynamism and the complex and thus emphasize the changing and dynamic character of social reality. In doing so, postmodern-based worldviews such as flux and transformation and socio-ecological emphasize the dynamic and changing aspects of social reality which humans can easily relate to in the process of making sense of social systems that arise from self-organization and emergence. Chia (2003) argued that postmodern worldviews highlight and draw attention to the need for practitioner managers and policy makers to be more deeply aware of the underlying societal forces shaping social moods and capacities as well as managerial mindsets.

Worldview with Pragmatism as its Foundation

The pragmatic worldview proposes that to gain impactful actions and outcomes, neither dogmatic adherence to a rationalist-determinist view nor chaotic relativism alone can build a useful picture of our social world. Table 1.10 lists and describes the primary pragmatic worldview.

Table 1.10

Pragmatic Worldview

Worldview	Description
Pragmatic worldview	According to Morgan (2007) the pragmatic worldview emphasizes that the human participants in any social system must make choices about what is important and which methods are most appropriate for answering the questions they may have. Participants in any social system thus make choices about what is important and what is appropriate in their social worlds, inevitably involving aspects of their own personal history, social background, and cultural assumptions in any decisions made and actions taken. As he further asserted, all aspects of the social world involve ethical and moral considerations of each of the participants in the system. Morgan (2007) argued that it is not inquiry that is central to a pragmatic worldview, but rather the idea that human participants in any social systems need to gain knowledge in the pursuit of outcomes. He explained that the pragmatic worldview accordingly draws attention to both the lines of action that participants follow in social systems as well as the methods they use to attain progress. The important point being that from the pragmatic worldview perspective, all human participants in social systems have unique sets of values and politics that shape who they are and how they act. Morgan (2007) argued that based on this premise, a pragmatic worldview builds a reality map that accepts that the interpretive and postmodern worldviews are just as important as positivist and modernist worldviews. The pragmatic worldview, as Morgan (2007) explained, is congruent with this logic and redirects our attention to investigating aspects of social systems that have the most impact on actions within social systems, utilizing any worldview and methods that may have the most

	impact. The pragmatic worldview, rather than describing a reality map, proposes that we could use any reality map for understanding social systems, as long as it achieves the highest degree of impact in addressing our actions and outputs in social systems.

The pragmatic worldview described in Table 1.10 stands in strong contrast to the other worldviews described earlier. The pragmatic worldview, as Mertens (2014) described it, is sensitive to the complex cognitive interests that occur in social systems, while also allowing for a flexible approach by not being restricted to any single monolithic view of social reality. The positivist and modernist perspectives of social systems are accordingly only partially accepted by a pragmatic worldview on the grounds that it is impossible to attain complete objectivity in any social system. The interpretivist and postmodernist perspectives are only partially accepted by the pragmatic worldview, because of their lack of any systematic standards for judging the quality of any interventions. A pragmatic worldview proposes a re-orientation in thinking from other worldviews by rather emphasizing that we should evaluate the intent, motivation, and expectations of inquiry and actions to select the most appropriate worldview or collection of worldviews for action.

Worldview with a Metamodernist Foundation

The metamodern worldview proposes that social systems are a synthesis of both postmodern and modern standpoints, while also being like neither. Table 1.11 describes the primary metamodern worldview which can be derived from metamodernist philosophical foundations:

Table 1.11

Metamodern Worldview

Worldview	Description
Metamodern worldview	For Freinacht (2017), the metamodern worldview proposes that the social reality is made of *metamemes.* Metamemes, he said, are the greater patterns that give structure to our social reality by structuring other memes. Memes, he explained, are anything from laws,

	philosophy, art, language, to norms, and values that exist in social reality. Social systems from this worldview are considered to be both natural objects and structures of feeling where both and neither of these two aspects can be seen as fundamental and ultimately leading to and determining each other. The metamodern viewpoint, as Freinacht (2017) and Shabanova (2020) emphasized, sees no distinction between social systems, nature, and culture. The metamodern worldview also recognizes that we live in the information age and that human social systems evolve through different developmental stages. Technology in this metamodern worldview is not viewed as a neutral medium, as technology is considered to both shape humans in social systems and to be shaped by humans. The metamodern worldview, they argued, sees both the natural environment and social systems as being fundamentally transformed by technology in ways that cannot simply be understood in causal terms of human action. The development of social systems from a metamodern worldview, Freinacht (2017) asserted, is accordingly driven by non-linear dynamics which evolve from a logic that is far from proportional to the intentions and activities of the participants in social systems. From a metamodern worldview, we therefore always synthesize the information that we have about social systems into a meta-narrative, while understanding at the same time that this narrative about reality will never be complete. Any social system from a metamodern perspective is thus considered both to be and neither to be causal, random, static, dynamic, complex and complicated, or a feeling, entity, culture, illusion, or having dominance and control.

The metamodern worldview of social systems transcends the naivety of modernism and readily combines aspects of postmodernism to build a very differing view of social reality which is similar to both but also something completely different. The metamodern worldview proposes that technology is not merely an instrument in the hands of social systems participants but that technology has its own agenda and logic which is both shaping social systems and the environment and ultimately steering history. The metamodern worldview also proposes that reality oscillates between the static and dynamic, between holism and self-organization, between connectedness and randomness, and between complicatedness and the complex.

Conclusions

Each of the meta worldviews presented above provides a different perspective on social systems and what should be regarded as important. In addition, each creates meaning that, Charteris-Black (2011) argued, elicits unconscious emotional responses that impact our system of beliefs and values. Beliefs and values further impact our actions, and thus our responses in the act of sense making as discussed in Chapters 1 and 2. While each person is likely to develop an individual worldview based on a hybrid of the meta worldviews described above, these meta worldviews still

shape our reality as they frame the ways that our shared reality is described, discussed, and communicated in social systems. For example, Ackoff (1999) clearly demonstrated this when recounting an example of how a university class defaulted to an organismic worldview by discussing and considering only the interventions they had developed for a change management project, while not considering the larger system that included the decision makers who could implement the interventions. As Ackoff's (1999) example illustrated, although individual worldviews tend to be hybrids consisting of a number of perspectives, we are often forced into thinking within a specific worldview when we adopt a specific technique or method of analysis in social systems.

The reasons for adopting a specific worldview are not necessarily always apparent, as managers, researchers, and social systems participants tend to select approaches to social systems based on practicality, sources of data, and experience in using methods, techniques, and approaches. While it is clear that the worldviews described above all have limitations in explaining the complexities of social systems, they most certainly do draw attention to differing aspects of social systems' functioning. Clearly each of the worldviews described above simplifies some aspects of social systems, but by doing so, they bring more clarity, focus, and meaning to these aspects, which may be quite useful in specific situations and systems contexts. By creating more clarity and meaning, the worldviews described do indeed demonstrate that they are applicable in understanding differing aspects of social systems, in different states of functioning, and at different times. Despite this, the literature provides very limited guidance on which methods of analysis may be applicable when related to the various worldviews. For some worldviews this may be self-evident. For example, scientific management can strongly be linked to the mechanistic worldview, while the domination worldview, say, is less apparently applicable. The discussion above indicated that while a vast variety of worldviews exists for developing different reality maps of social systems, the landscape of worldviews is not *accurately mapped* to systems within which they could be effective in aiding sense making, behaviors, interpretations of social systems, and ultimately decision making and actions. For example, when cause and effect linkages are

directly proportional, a mechanistic worldview and scientific management could be more advantageous to sense making, while when dealing with worker dissatisfaction in an organizational system it may be more advantageous to adopt a psychic prison or domination worldview to sense making, along with a method of postmodern deconstructionism. While the pragmatic worldview provides a loose framework for mixing and utilizing differing worldviews for sense making, it provides very little direction for understanding when and how to mix differing worldviews in social systems. Pragmatism is primarily retrospective, as it is only possible to evaluate the utility of an approach after sense making and action has occurred.

Another consideration that has not been well described in the literature is the dominating effect of technology on worldviews in social systems. The rise of technology has created an environment in which data is collected about all aspects of social systems. This collection of data has created large databases, which are continuously mined and analyzed in an attempt to engage in the process of sense making. Examples include customer databases, stock market data, social media data, and historical organizational data, to name only a few. In an attempt to engage in sense making, advanced computational techniques such as artificial intelligence and neural networks have been applied to the data. This has given rise to a vast industry of software giants that sell, promote, and promise sense making of the social world through data-driven approaches. Inevitably, this logic and rise of the Internet has privileged mechanistic and modernistic worldviews and positivist approaches to the flux and transformation worldview. However, despite the significant advances in computing technology, artificial intelligence, and modeling, we have not improved our ability to make sense of social systems. This statement may appear to be controversial, but there are many examples to justify this logic. For example, in the last two Presidential elections in the United States of America, no amount of modeling, analysis, or big data interpretation accurately predicted the polling forecast. Other examples include the subprime mortgage crisis of 2007-08, and the current devastating supply chain effects of the COVID-19 crisis, as discussed by Pourdehnad, Starr, Koerwer and McCloskey (2020).

While it is certainly not possible to accurately predict the future, the literature on worldviews indicates that it may be possible to improve our sense making of social systems by adopting more than one perspective. The literature also further indicates that differing worldviews are potentially more applicable to different social systems states, domains, contexts, and situations by emphasizing different aspects of social systems. Following this logic, it is then apparent that differing management theories, methods, tools, and techniques that are also based on differing worldviews, must also be more or less applicable to different types of problems, systems states, and situations in social systems based on their particular worldview. With worldviews as the overarching lenses, it becomes possible to first identify the knowledge orientation of differing management approaches, theories, methods, tools, and techniques as well as their particular area of applicability to different types of problems, systems states, and situations in social systems. To accomplish this, an analytical framework for coding management approaches, methods, techniques, and tools according to their underlying worldviews will have to be developed. Having described some of the most important worldviews and outlined some of their limitations, the next chapter will move on to this study's developing such a framework for coding management approaches, methods, techniques, and tools according to their underlying worldviews.

CHAPTER 5: METHODOLOGY

Chapter 4 of this study identified sixteen differing worldviews of social systems that embody distinct and differing ways to think of social systems. To analyze and capture the richness of differing management approaches, theories, methods, tools, and techniques for comparisons and analysis, this study developed a coding framework. Strategy consulting was selected as the primary area of analysis due to its depth and breadth in covering complete systems as a unit of analysis rather than dealing with consulting approaches that focus on only some of the constituent parts of social systems. The coding framework was used to evaluate the four primary approaches to strategy consulting which were identified by Schein (1990, 1995, 1997) and Trottier (2012), namely the *expert, doctor patient, process* and *emergent* approaches. Strategy consulting thus represents a comprehensive set of management approaches, theories, methods, tools, and techniques that have been applied to the sense making and ontological mapping of complexity in real world situations.

Philosophical Approach

In light of the interminable debate between correspondence and coherence theories and the invidious incompatibility thesis proposed by both sides of the debate, the pragmatic alternative was chosen for this study. In taking pragmatism as the philosophical basis for this study, an either/or approach to social science research and inquiry was categorically rejected in favor of a more pluralistic and compatible approach. The pragmatic orientation, as described by Mertens (2014), Creswell (2009), and De Vaus (2001), offered the best possible utilization of methods or combination of methods most suited to answering the research questions and objectives of this study.

Sequential Qualitative Meta-Synthesis Design

In keeping with the philosophical assumptions of pragmatism, as argued by Mertens (2014), Creswell (2009), and De Vaus (2001), that the research questions and objectives of a study should drive the selection of an appropriate design for inquiry, a meta-synthesis design was

adopted. This is the only design which, according to Thorne, Jensen, Kearney, Noblit and Sandelowski (2004), rather than producing an over simplification of common denominators across different research studies, theories, techniques, or tools seeks to retain the complexities of each of the areas of analysis. The aim of the research was to allow for the use of both induction, or the discovery of patterns and therefore confirmatory research, and abduction, or the uncovering of a set of explanations for understanding the results, and therefore exploratory research. Although this study was primarily qualitative in its orientation, it was mixed-methods in the sense that both quantitative- and qualitative-validated theories, methods, techniques and tools were included in the analysis. This study further drew on a sequential research typology as identified by Creswell (2009). The sequential research typology consisted first of a phase of qualitative comparison across worldviews to develop an analytical framework for the classification of strategy consulting approaches. This phase was followed by a second phase in which strategy consulting approaches were classified and categorized according to this framework. The third phase was synthesizing the findings into theory.

Mode of Inquiry

The sequential, qualitative, meta-synthesis design of this study was aimed at first developing comparative data about the differing worldviews identified in the literature in phase one. The qualitative mode of observation used in phase one was capable of systemically describing the meaning of textual data while also reducing the amount of data in order to make the differing worldviews comparable with each other in a practical manner. The output of phase one of the analysis was then applied as an analytical framework in phase two to classify and categorize the four primary approaches to strategy consulting: expert, doctor patient, process, and emergent. The third phase of the study develop theory based on a meta-synthesis of the research findings.

Procedural Steps in Implementing the Research Design

As Creswell (2009) asserted, a research typology is simply the design and procedure for collecting, categorizing, analyzing, interpreting, and reporting data in a research study. A rigorous

research typology guides both the methods and decisions of a research study and establishes the logic and foundation for interpretations at the end of the study.

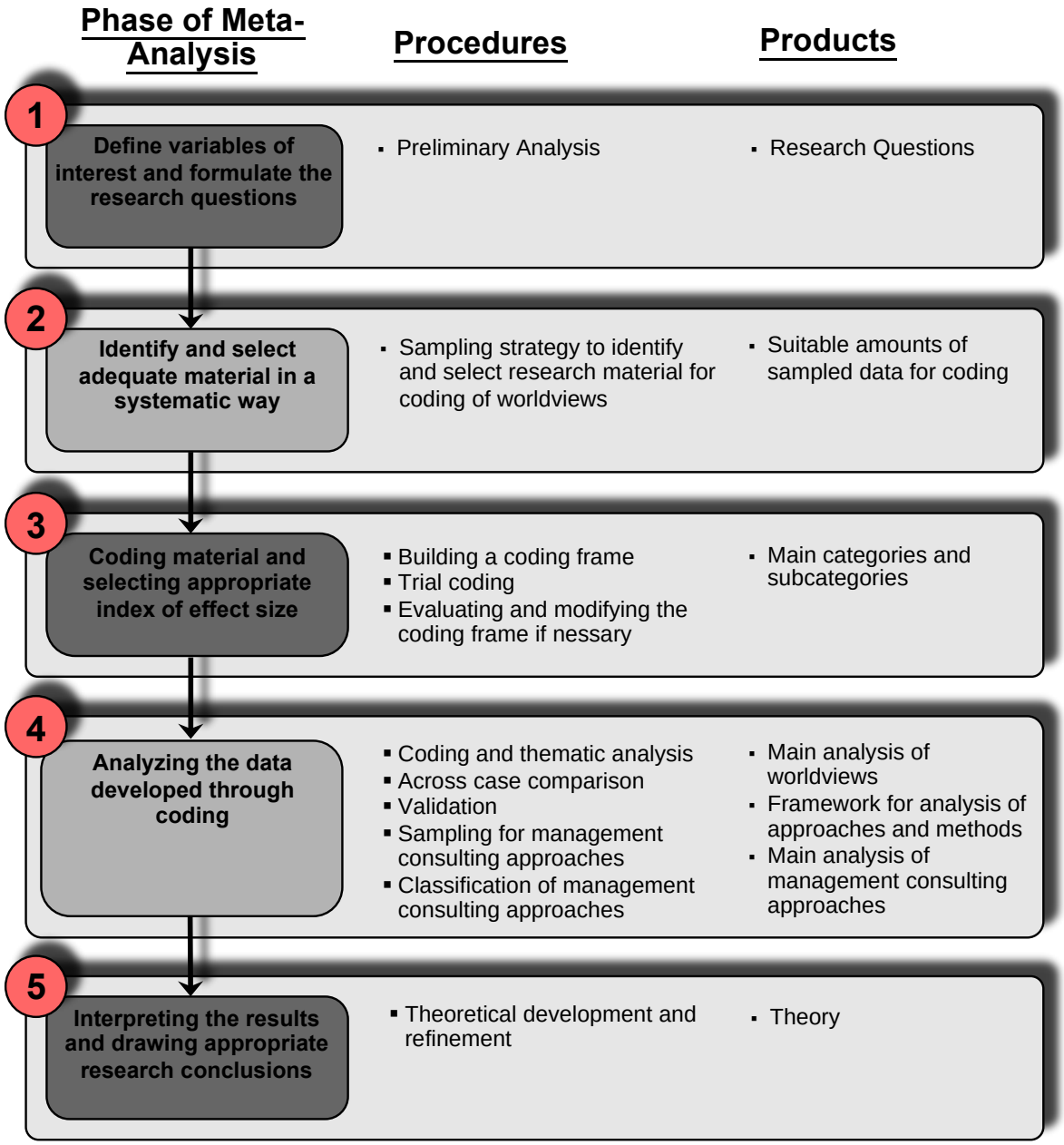


Figure 1.11

Procedural Steps in the Research

Source: Adapted from Yang, B., 2002,"Meta-analysis Research and Theory Building" Advances in Developing Human Resources, 4(3), 296-316; and Schreier, M., 2012, "Qualitative content analysis in practice." The SAGE Handbook of Qualitative Data Analysis. 170-183.

Figure 1.11 provides an overview of the procedural steps, which acted as a guide for the implementation of the sequential, qualitative, meta-synthesis research design with a content analysis mode of inquiry. The first step was the definition of the variables of interest and the formulation of research questions. In the second step a sampling strategy and procedures were created for identifying and selecting research material for the content analysis of the differing worldviews. In the third step a coding frame was developed to code the research material on worldviews along with categories, sub-categories, and finally themes that were then revised and expanded if necessary. In the fourth procedural step the collection and analysis of the qualitative data was implemented to first analyze and code the differing worldviews and then to apply this analytical framework to classifying and categorizing the four primary approaches to strategy consulting which were identified for comparisons and analysis. Finally, in the fifth procedural step, the results of the analyses were interpreted to develop theory and to identify to what extent the results had helped to explain and add insight to the area of interest and to identify what had been learned overall in response to the study's purpose, aims, and objectives.

Procedure

In this section the methodological approach of the research design will be discussed and described. Some of the primary issues explained include (a) how literature was identified for inclusion in the three phases of analysis, (b) how credibility and trustworthiness were developed for the three phases, and (c) how the four primary approaches to strategy consulting were categorized and classified according to the content analysis and the overall strengths and limitations of the approach.

Sampling Strategy for Analytical Framework

Chapter 4 of this study identified sixteen worldviews of social systems that embody distinct ways to think of social systems. An intensive literature search for sources discussing worldviews

yielded thirty different source documents, including journal articles, published books, and website publications. These thirty sources were ultimately divided into forty distinct documents, some of which were chapters in sourced publications, and journal articles. In this study, all of the forty documents identified were purposefully sampled in order to develop the analytical framework for the worldviews.

Analysis to Develop the Analytical Framework

A content analysis was conducted on the forty source documents in order to determine the keywords, issues, and themes for each of the sixteen worldviews. This effort built an advanced understanding of the differing worldviews while also leading to the development of condensed summaries of each of the worldviews based. The software tool Voyant, which is an open source, web-based reading and text analysis tool was used. Voyant produced word counts and helped to extrapolate the textual data from the forty source documents into themes. The data from this content analysis was then developed into an analytical framework. Table 1.12 identifies each of the worldviews along with some of their key characteristics developed from the content analysis.

Table 1.12

Worldviews with Key Characteristics

Worldview	Key Characteristics
1. *Mechanistic worldview*	• Organizations are machines of interlocking parts • Cause and effect are strongly related and identifiable • Bureaucratic organizations require rules and regulations • Optimization, efficiency, reliability, and predictability
2. *Cybernetic worldview*	• Organizations strive to maintain a given equilibrium with their environment • Inputs, transformation processes, and outputs are connected to the environment through feedback loops and control mechanisms • Social systems are tightly coupled and consist of an arrangement of parts, components, and subsystems that are hyper sensitive to changes in each other and in the operational environment
3. *Open systems worldview*	• Organizations and social systems are self-maintaining structures • Social systems are capable of self-maintenance by transforming their environmental inputs into products, services, waste products, and resources to repair and replace elements, components, subsystems

	• The environment in which a social system functions shapes, supports, and infiltrates the system, leading to critical external connections and linkages which can be more important than the internal linkages and connections of the system itself • Systems elements, parts, and sub systems exhibit loose coupling
4. ***Organismic worldview***	• Social systems are living systems • Social systems are born, grow, develop, decline, and die • Social systems adapt to changing environments and are connected to all other social systems in an interconnected web • Social systems both affect and are affected by their environments • Different species of social systems exist
5. ***Social systems worldview***	• Social systems are self conscious • Social systems are connected to other social systems as well as organisms and mechanical systems in a web of relationships • Social systems are capable of self-replication and adaptation and are connected to other systems by flows of communication, information, and resources • Individual components of the social systems are connected by interconnections of communication, symbols, artifacts, and linguistics • Importantly, social systems are regarded as purposeful in their own capacity and capable of rational choice
6. ***Socio technical worldview***	• Social systems consist of two independent but correlated systems, the social and technical • The technical system is concerned with processes, tasks, and technology required to transform inputs into outputs, while the social system is concerned with the human attributes of attitudes, skills, and values and the relationships among individuals and towards the system, authority, and structures • The outputs of any social system are the product of the interactions between the technical and social systems • The system's success is dependent on the psychological needs of individuals and therefore humanist attributes such as teamwork, multi-skilling, and self-management
7. ***Learning systems worldview***	• Social systems are learning systems that direct and coordinate the activities of autonomous subsystems • Social systems are capable of knowledge management and learning to learn • Social systems are institutional thinking machines that fragment, routinize, and bound decision making • Knowledge management and the capacity for learning characterizes self-organization of social systems
8. ***Ecological systems worldview***	• Ecological systems have no purpose of their own and function only to support the survival of the social and organismic systems • Social systems are thus distinct entities that are different from natural systems • Nature contains social systems, but social systems are still distinct and different from nature because these systems have purpose
9. Psychic prison worldview	• Organizations are mental prisons sustained by conscious and unconscious processes that imprison and confine people through images, ideas, thoughts, beliefs, culture, concepts, language, and actions

	• Social systems are socially constructed and have a degree of power and control over their creators • Social systems cultivate habitual thinking, rigid thought patterns, and preferred ways of thinking • Dualistic view that both rational and irrational phenomena are linked and part of the same meta process within social systems • What is experienced is not real and independent but a limited and constrained social construction of reality
10. *Domination worldview*	• Organizations impose a state of slavery on human participants • Tensions between capitalist and socialist interests in social systems create an environment in which capitalist interests keep the other group enslaved in a contemporary system of slavery • Social systems are oppressive and exploitive • Hidden agendas dominate social systems and exploitative actions occur through the use of power • Class-based tensions and oppression dominate social systems
11. *Culture worldview*	• Social systems are cultures cognitively conceptualizing in terms of the shared meanings of values, beliefs, norms, rituals, and patterns which direct social system functioning • Social systems consist of webs of meaning created by the human participants in the systems • Culture creation is a never-ending pursuit in social systems, as conscious attempts are continuously required in which people share meanings and experiences to gain insights for action • Social systems consist of separate and identifiable cultures in which the meaning of things is constantly shared and co-created in the minds of humans between the members of the social system • Values, ideas, beliefs, norms, and rituals are important in any social system as reality is socially constructed
12. *Political worldview*	• Social systems as stages for political interplay and the operation of power • The use of power is required in social systems to resolve and manage conflicts to obtain a specific purpose • Politics emerge in the tensions that manifest themselves in the differences between individual interest, conflict, and power. • Political dimensions exist in all facets of social systems, including structures, technologies, and strategies • Because the political worldview focuses on individual interest and understanding of individuals, it also emphasizes the social-constructed view of social systems functioning
13. *Flux and transformation worldview*	• All reality is in a continuous, dynamic state of motion and change • Social systems are in opposition to the constant change, movement, and dynamic flow of reality • Social systems existing as the constructive counter-movement in our minds to that reality which is aimed at fixing, ordering, routinizing and regularizing the dynamic flow of lived experience • Social systems are world making phenomena, as they seek to fix the constant flow of reality in our minds to create internal coherence for an otherwise random world • Social systems are complex adaptive systems which are capable of self-replication and novelty characterized by non-linear dynamics

	• Logics of complexity, chaos, and randomness shape social reality
14. ***Socio-ecological worldview***	• Living systems function far from equilibrium • Social systems and the ecological systems are integrated, complex adaptive systems that are inseparable ontological entities • Reality is constituted relationally, and systems in this reality have adaptive capacities • All behavior in reality is a manifestation of dynamic properties of reality, and all systems in this reality are radically open • Novel features of reality are constantly created through complex causality • Complexity is omni-present and no framework can be created or exists that allows for objective engagement in social systems. • All knowledge is provisional but at the same time has the potential to challenge all traditional exploitative knowledge, practices, and methods
15. ***Pragmatic worldview***	• All social systems are characterized by ethical and moral considerations of each of the participants in the system • Human participants in any social systems need to gain knowledge in the pursuit of outcomes and actions • All human participants in social systems have unique sets of values and politics that shape who they are and how they act • Rather than describing a reality map of social systems, we should therefore rather use any reality map for social systems, which achieves the highest degree of impact in addressing our actions and outputs in social systems
16. Metamodern worldview	• Social systems are constructed of metamemes which give structure to our social reality by structuring other memes • Social systems are considered to be both natural objects and structures of feeling where both and neither of these two aspects can be seen as fundamental and ultimately leading to and determining each other • Social systems are driven by non-linear dynamics which evolve from a logic that is far from proportional to the intentions and activities of the participants • Social systems are considered both to be and not to be a feeling, entity, culture, illusion, dominance, control, causal, random, static, dynamic, complex and complicated. • Technology both shapes humans and social systems and is shaped by humans and social systems

The distinguishing characteristics identified in Table 1.12 form the basis of the analytical framework which allowed for the classification and categorization of the four primary approaches to strategy consulting which were identified by Schein (1990) and Trottier (2012).

Sampling Strategy for Management Consulting Approaches

The target population for the main analysis was the *landscape of strategy consulting approaches,* used in management consulting engagements. In this study the generally accepted approach of clustering consulting engagements based on the clients' expertise and the type of

intervention in the consulting engagement was adopted. Schein (1990, 1995, 1997), Trottier (2012) and Curuksu (2018) asserted that, based on this logic, consulting engagements could logically be divided into four distinct approaches. First the *classic expert approach* in which the consultant advises the client on a particular problem. Second, the *doctor/patient* approach in which consultants engage in both problem diagnosis and giving advice. Third, the *processes* approach in which the consultant only facilitates a process which then helps clients to self-perceive, understand, and then to act upon an issue or problem that occurs within their environment. And last, an *emergent* approach which, in opposition to the other three, is not problem-focused but rather is orientated only towards an open and continually evolving process of discovery with clients. It was decided from the outset of this study that all four approaches to strategic consulting would be included in the analysis phase of the study.

Selection of Literature for the Main Analysis

From the beginning of this study, it was decided to select a purposeful sample of articles that described each of the four identified approaches to strategic consulting. Consequently, articles, literature and publications which dealt with differing perspectives of the four primary approaches to strategic consulting were considered for inclusion, while articles that explored other interesting but unrelated dimensions were excluded. This decision was based on the fundamental aims and objectives of this study, which was focused on evaluating differing approaches to strategic consulting in the contexts of the differing worldviews. To systematically identify relevant literature for analysis in this study, a specific method and search criteria was adopted to ensure consistency with these aims and objectives. The search strategy was based on keywords and phrases derived from the four primary approaches to strategy consulting. The keywords or phrases were used as key search terms to search online library catalogues, Google Scholar, Google Web Search, Google Books, Google Images, and Microsoft Bing Web Search to identify potentially relevant materials. The full texts of all potentially relevant, obtainable sources were then retrieved and interpretively assessed for their inclusion. For inclusion, an article, publication, or text's name had to include one of the search terms derived from the

four primary approaches to management consulting or a related search term that could be related to strategic consulting methodologies, approaches, or methods. Preference for inclusion was given to obtainable sources that ranked higher on a search engine's lists. The full texts of all potentially relevant sources were then retrieved for inclusion in the analysis. Texts were excluded from the analysis if they were not published on the internet, peer-reviewed, print-published, did not have an English abstract, or did not directly address the search terms. Ultimately 35 articles were purposefully sampled for the analysis.

Main Data Analysis

The analysis of the four primary approaches to management consulting was undertaken by coding each of the identified supporting source material documents for each of the approaches according to their underlying worldview. To do this, each source was read, and a primary worldview was assigned to each of the articles based on the analytical framework developed through the content analysis. In addition to analyzing the identified articles in relation to worldviews, other concepts and distinctions were also included which aided in addressing the aims and objectives of this study. A summary of the primary code categories, which were applied to the analysis of each of the four strategy consulting approaches, is provided in Table 1.13.

Table 1.13

Primary Code Categories for Articles

Concept	Code category	
1. Worldview perspectives	• *Mechanistic* • *Cybernetic* • *Open systems* • *Organismic* • *Social systems* • *Socio technical* • *Learning systems* • *Ecological systems* • *Culture*	• *Political* • *Psychic prison* • *Domination* • *Flux and transformation* • *Socio-ecological* • *Pragmatic* • *Metamodern*

2. Ontology	• *Ordered/Simple* • *Complicated* • *Complex*	• *Complex & complicatedness* • *Chaos* • *Disordered*
3. Dominant organizing principle	• *Balanced* • *Complex* • *Complicatedness*	
4. Epistemology	• *Rule-based epistemology* • *Heuristic-based epistemology*	
5. Consulting approach	• *Expert consulting* • *Doctor patient consulting*	• *Process consulting* • *Emergent consulting*
6. Context	• *Prospective* • *Retrospective*	
7. Role of technology	*Information acquisition:* • *Manual* • *Supported by automation* • *Done by automation* *Information analysis:* • *Manual* • *Supported by automation* • *Done by automation*	

As Table 1.13 indicates, each of the supporting source articles were first coded according to their underlying worldview. Second, they were coded according to their more general ontological orientation, which was derived from the coding framework. The ontological coding was based on the differing categories identified in the intensive literature search, which indicated to which systems state or context the source article was related based on its underlying worldview. Third, each source article was then coded according to its epistemological orientation. The epistemological orientation, as Snowden and Stanbridge (2004) explained, indicates if an approach is based on prescribing rules of best practice and hence determinism about which rules are prescribed consistently, or heuristically which allows for ambiguity and uncertainty and therefore emphasizes that contextual interpretation is vital to its application. Fourth, each specific article was coded according to the four primary approaches to management consulting. Fifth, each article was then coded to identify if they were prospective- and

future-focused or retrospective and focused on assessing past behaviors, actions, and metrics. Finally, each was coded to identify whether the process, procedures, method, or theory they described and discussed could only be completed manually by humans, were supported by automation, or could be fully automated. As Parasuraman, Sheridan and Wickens (2000) explained, automation can be applied to four different functions of any cognitive, information-related, human/machine systems. The four functions, they identified are *information acquisition, information analysis, decision selection*, and *implementation of the decision*. All four functions, they said, are either completed manually, supported by automation, or fully automated. The intent of the final coding category was not to evaluate the decision selection phase of any of the approaches or the follow-on action implementation phase of any of the analyzed management theories, methods, tools or techniques. Rather, this decision was made because the decision selection phase and follow-on action implementation phase of any management theory, method, tool, or technique is highly context-specific. In this study they could not feasibly be evaluated for the application of technology and automation without knowing the larger, specific context to which it would be applied. The intent in this study was simply to evaluate if any of the identified management theories, methods, tools, processes, techniques, or procedures described in the articles could be automated or supported by automation in the information acquisition and analysis phases of the approaches.

Trustworthiness and Credibility Procedures

As Flick (2009) and Creswell (2009) demonstrated, qualitative trustworthiness and credibility implies that researchers should check for the accuracy of findings by employing certain procedures. In the qualitative phases of this study the following trustworthiness and credibility procedures were undertaken to ensure that the research approach was consistent across the differing sequential phases of the qualitative inquiry:

1. *Cross Checking of Codes*: A cross checking of codes by an independent, qualitative researcher was conducted during the content analysis phase of the sixteen

worldviews to ensure that the secondary researcher had similar results that were independently derived. The establishment of this inter-coder agreement involved two phases. During the first phase, the both researchers independently coded and analyzed the sixteen worldviews for keywords and themes. After coding, the researchers met online and compared their keywords and the themes for consensus. Believing it to be more important to agree on the themes they assigned than to have the exact same keywords, they asked themselves whether they had assigned the same themes to each worldview and calculated the percentage of agreement between them. The overall inter-coder agreement on themes was 90%, which was significantly higher than the minimum of 80%, recommended by Miles and Huberman (1994) for reliability. The primary researcher then coded the selected articles for the four primary approaches to management consulting according to the code categories identified in Table 1.12. During the second phase, the secondary researcher selected a random sample of two of the four primary management consulting approaches to compare the coding across these randomly selected approaches to see if the articles were coded consistently from the selected source material. The percentage of inter-coder agreement on articles was 98%.

2. *Peer examination*: The completeness and comprehensiveness of the list of forty sampled articles for the four strategy consulting approaches was independently verified by the researcher's academic supervisor. This list was additionally double-checked by another management scholar to ensure that the most prominent approaches from each of the strategic consulting approaches were included for analysis. The researcher's academic supervisor also randomly selected a few of the articles to confirm that the coding of worldviews to these articles was consistent with the coding framework, which had been developed for the analysis.

3. *External Auditing*: As Creswell (2009) stated, external auditing is having an independent investigator look over many aspects of the research such as the accuracy of coding, the relationships between research questions and the data, and the level of data analysis. In this study the researcher used an independent investigator with postgraduate qualifications to assist with the checking of the coding frame. The researcher's academic supervisor also checked the relationships between the research questions and the data and the level of data analysis by conducting constant and careful auditing on all research procedures and data analyses in the study.

Strengths and Limitations

Blaikie and Priest (2019) argued that all research designs have strengths as well as limitations which require careful assessment and management as the research process proceeds. The strengths that can be associated with a sequential, qualitative, meta-synthesis design with a content analysis mode of inquiry, include the following:

(a) This approach allowed for each of the assessed strategy consulting approaches to retain its own character in the analysis which was required in order to satisfy the aims and objectives of this study.

(b) A content analysis mode of inquiry in the meta-synthesis design allowed for the systematic generation of data from differing empirical areas for comparison, thereby reducing and condensing the volume of qualitative data. The content analysis mode of inquiry is thus better suited to this study than any other qualitative mode of inquiry that tends to create large amounts of rich data about a very focused phenomenon and is therefore not practical for analyzing differing empirical areas for comparison.

(c) According to Yang (2002) and Sandelowski, Docherty, and Emden (1997), the sequential, qualitative, meta-synthesis approach has the capacity to integrate a number of findings from

different empirical areas which allows for improved generalizability in comparison to other qualitative approaches that, for the most part, cannot generalize finds across a broad base of empirical areas. To satisfy the aims and requirements of this study, the generalizability of analysis across a broad base of empirical areas is necessary to enable the comparisons of management consulting approaches in relation to the variables of interest (differing management consulting approaches).

(d) Yang (2002) emphasized that the sequential, qualitative, meta-synthesis design provides a useful basis for evaluating the relative impacts of predictors across empirical areas, which makes it particularly useful for the evaluation of existing theories and models. The aims and objectives of this study are particularly focused on evaluating management approaches, theories, methodologies, techniques and tools in relation to the variables of interest, making this design the most suitable one for this study.

(e) A sequential, qualitative, meta-synthesis design, according to Yang (2002), also allows for research that develops and verifies new theoretical principles based on possible attributes and characteristics over a diverse empirical base and is, thus, an approach of research followed by theory building. This design is accordingly well suited to this study which aims to first conduct research and then to build theory.

The strengths of the sequential, qualitative, meta-synthesis design with a content analysis mode of inquiry confirm that this approach is ideally suited to addressing the research questions and objectives of this study.

The limitations that can be associated with a sequential, qualitative, meta-synthesis design with a content analysis mode of inquiry, include the following:

(a) According to Sandelowski, Docherty and Emden (1997) one of the most prominent problems with this design is in identifying whether or not similar research is, in fact, about the same topic. This problem is largely negated for this study due to the well-

defined nature of the variables of interest, namely differing management consulting approaches that deal with organizational management. With regards to content analysis, this problem is also negated because research is only included under each worldview when it directly deals with the specific worldview under analysis.

(b) Sandelowski, Docherty, and Emden (1997) emphasized that a sequential, qualitative, meta-synthesis design is most suited for evaluating the conceptual foundation of literature, approaches, models, methods of analysis, and techniques because any text inherently includes the personal style of the authors. This problem is not relevant in this study as the focus of the analysis is directed precisely at evaluating the differing conceptual foundations of the landscape of management.

(c) According to Yang (2002), a sequential qualitative meta-synthesis design negates the possibility of confirmation or disconfirmation of theories that are beyond the thinking of the analyzed data. A sequential meta-synthesis design as Yang (2002) argued, is only suited for research followed by theory development and is not suited to a ground theory approach. The aims and objectives of this study can be satisfied by research followed by theory development, eliminating the need for a ground theory approach.

Understanding and managing the limitations of the sequential, qualitative, meta-synthesis design with a content analysis mode of inquiry are critical to examining the specific research questions and objectives of this study.

Ethical Considerations

The protection of human subjects or participants in any research study is imperative. This research study does not include any human subjects or participants and consequently no specific ethical considerations and safeguards were considered during the design, data analysis, and theory development stages of this study.

Conclusions

Chapter 5 explained that this study utilized a sequential, qualitative, meta-synthesis research design with a content analysis mode of inquiry. The aim of this sequential qualitative design, as articulated, was to first develop an analytical framework for coding strategic consulting approaches according to their underlying worldviews. The second phase of the design then focused on coding the four primary approaches of strategic consulting according to this analytical framework of worldviews. Finally, the results of the coding from the second phase were then used to develop theory based on the analysis. The use of a qualitative, meta-synthesis was detailed, described, and justified in this chapter.

CHAPTER 6: ANALYSIS

As described in Chapter 5, this study used a sequential research design with multiple phases. Exploratory data about worldviews was first developed to understand how complexity has been navigated within strategy consulting engagements by analyzing 35 purposefully sampled articles about different approaches to strategy consulting engagements. Discussion of the theory that was then developed appears in Chapter 7. In this chapter the analysis of the 35 sampled articles is presented and discussed.

Characteristics of Literature Samples

The 35 articles in the purposeful sample were published between 1998 and 2019. Sixty three percent (22) of the 35 articles were published between 2017 and 2019, eleven percent (4) were published between 2016 and 2006, and twenty six percent (9) were published between 2005 and 1998. The bulk of the articles, (29) of the 35, were purposefully sampled from published books while (3) articles were sampled from journals and (3) from Internet publications. Of the 35 articles, 10 describe expert consulting engagements, models, techniques, and methods, 10 describe doctor patient engagements, 10 describe process engagements, and 5 describe emergent engagements, models, techniques and methods.

Consulting Approaches

Strategy consulting can broadly be defined as a service provided for remuneration by objective outsiders who assist executives to improve the strategic management, operations, and economic performance of social systems. A recent historian of strategy consulting, McKenna (1995), wrote that strategy consulting emerged in the 1920s and ultimately started to blossom in the 1930s, driven by the expansion of complex and large industrial organizations in the United States of America. While strategy, management practice, and management theory may be as old as civilization itself, it is clear, as shown by McKenna (1995) and Gross and Poor (2008), that strategy consulting is only a recent development

in the management of social systems. Despite strategy consulting's late start, it has become one of the most influential players in the global business services landscape. Gross and Poor (2008) argued that the influence of strategy consulting firms will only grow, as strategy consulting will ultimately become an integral part of all business service offerings because the lines of distinction are ultimately blurred between traditional business services such as legal, marketing, engineering, and accountancy, driven by the perpetual march of information technology. Strategy consulting firms are some of the largest and most influential business organizations in the world. They market themselves as specialists in dealing with social complexity, and therefore, they merit further evaluation with particular attention paid to their approaches to sense making and the ontological mapping of social systems.

Curuksu (2018) argued that at first glance, all strategy consulting engagements appear to be different due to the unique challenges and expectations of each individual client. Despite this, it is still possible to cluster consulting engagements into four overarching models, as Curuksu (2018), Schein (1990, 1995, 1997), and Trottier (2012) have demonstrated, based on how much organizational expertise the client plans to invest in the consulting engagement. As described in Chapter 5, the target population for the main analysis was the landscape of strategy consulting approaches utilized in management consulting engagements. This study adopted the approach of clustering consulting engagements based on the client's level of engagement as described by Schein (1990, 1995, 1997), Trottier (2012) and Curuksu (2018). While focusing on the level of client engagement may at first appear arbitrary, it results in fundamentally differing approaches to strategy consulting engagements, sense making, and ontological mapping from both theoretical and practical perspectives, with fundamentally differing outcomes in social systems. In the section below a brief summary is presented of the four differing approaches to strategy consulting developed from the analysis of the 35 sampled articles.

Expert Consulting Approach Literature

The expert approach to strategy consulting, as Curuksu (2018) described it, is based on the premise that the *consultant has the capacity to solve a client's problem.* This approach to strategy consulting, as Curuksu (2018) further stated, is unidirectional and consultant-centric, as it proposes that information flows from the client in the form a problem to the consultant, who then addresses the problem. Curuksu (2018) argued that this is important because it underscores the two most fundamental principles that have made the large strategy consulting organizations very successful. First, he said, it presupposes that these consultants can be totally impartial, and second, it proposes that consultants can bring new strategic ideas and insights into organizations based upon diverse experiences in other industries. According to this logic, Chereau and Meschi (2017) argued that this is precisely the competitive advantage of expert consultants, as the purpose of the profession is to provide insights that resolve business problems.

Chereau and Meschi (2017) said that in light of the complex dynamics and complicatedness of the social world, new insights and ideas can be uncovered only through a rigorous, structured, and factual process of discovery. They further stated that from their perspective, this can be accomplished in consulting only through the use of frameworks, methods, and techniques that help to structure a factual, and data-driven process of discovery from which consultants can make recommendations. In line with these assumptions, the 10 sampled articles on expert consulting provided theory, practical guidance, and detailed frameworks that authors of the 10 articles identified as needed elements to successfully carry out expert consulting engagements. Table 1 identifies the sampled articles on expert consulting and the frameworks, methods, and techniques which were covered in the analysis of the 10 articles.

Table 1.14

Expert Consulting Approach Sample

Articles	Topics covered	
Burtonshaw-Gunn (2010). **(Chapter 5)** Chereau & Meschi (2017). (**Chapters 2, 3, 4, 5, 6, & 7)** Curuksu, (2018). **(Chapters 3 & 6)** Kaplan, R. S. (2005). **(Balanced scorecard & McKinsey 7-S model)**	• Balanced scorecard • Benchmarking • Business model & strategy • Business plan feasibility • Change pyramid • Change strategies • Continued performance • Generic models of competitive strategy • Marketing matrix • Mathematical tools and concepts • McKinsey 7-S model • Probalistic tools and concepts • Product performance analysis	• Products and services • Strategic analysis • Strategic capabilities • Strategic configurations • Strategic diagnostic • Strategic formulation process • Strategic intent • Strategic options • Strategic planning • Strategic positioning • Strategic segmentation • Strategy and innovation • Value chain & value network

The articles included in the purposeful sample were also endorsed by industry. The approaches presented in the articles were reviewed by the practitioners from leading strategy consulting organizations as a methodological guide for expert consulting engagements, which is consistent with industry practice. Chereau and Meschi's (2017), *Strategic Consulting: Tools and Methods for Successful Strategy Missions* was endorsed in the forward by Yves Morieux who at the time of publication was the managing partner of the Washington D.C. office of the Boston Consulting Group. The articles by Curuksu (2018) and Kaplan (2005) were also endorsed by associates from Boston Consulting Group, as well as McKinsey & Company and IBM strategy consulting, underscoring Curuksu's (2018) and Chereau and Meschi's (2017) opinion that the expert consulting approaches we sampled and analyzed, are widely applied in leading strategy consulting organizations around the globe. Curuksu (2018) and Chereau and Meschi (2017) further affirmed that the expert consulting approach by itself is the most widely adopted and utilized model in the strategy consulting industry globally.

Doctor Patient Approach Literature

The doctor patient approach to strategic consulting, as Curuksu (2018) explained, is a more balanced type of consulting engagement. Whereas the expert approach relies only on the expertise of the consultant in the client's specific problem area, the doctor patient model relies on a consultant's expertise in management and a framework for problem identification for its success. The doctor patient approach to strategy consulting assumes that the consultant's capacity to address the problem is co-constructed with the client to a small degree. The consultant in this approach performs an assessment with some input from the client, then makes a diagnosis, and finally offers a prescription based on the diagnosis. The 10 sampled articles that address the doctor patient approach to strategic consulting describe a range of methodologies that provide the foundational knowledge for such an approach as well as practical guidance for consultants who employ these approaches on assignments. Table 1.15 identifies the sampled articles on doctor patient consulting and the frameworks, methods and techniques which were covered in the analysis of the 10 articles.

Table 1.15

Doctor Patient Consulting Approach Sample

Articles	Topics covered	
Burtonshaw-Gunn (2010). **(Chapter 4)** Curuksu, (2018). **(Chapters 2, 5, 7, 8, & 9)** Rasiel, E. M., Friga, P. N., & Enriquez, J. (2001). **(Chapters 1, 2, 3 & 4)**	• Balanced scorecard • Benchmarking • Business models & plans • Change strategies • Competitive Intelligence • Market research • Cost optimization • Internationalization • Diversification • Downsizing • Mathematical tools • McKinsey 7-S model • Organizing internationally	• Profitable growth tests • Re-engineering • Resource allocation • Strategic configurations • Strategic diagnostic • Strategic formulation • Models for profitability • Strategic segmentation • SWOT analysis • Value chain & network • Value/Performance elasticity test

The articles on the doctor patient approach to consulting are also endorsed by the strategy consulting industry. The articles by Curuksu (2018) were endorsed by associates from Boston Consulting Group, McKinsey & Company and IBM strategy consulting while the endorsers Rasiel, Friga and Enriquez (2001) are all former McKinsey & Company associates. Curuksu's (2018) and Chereau and Meschi's (2017) statements that the doctor patient consulting approach is widely applied in leading strategy consulting organizations around the world are upheld. Taken together, the doctor patient and expert approaches account for the vast majority of strategy consulting engagements undertaken globally by dominant strategy consulting firms.

Process Consulting Approach Literature

Schein (1990) described process consulting as “a mutual inquiry process that not only creates a shared sense of responsibility for figuring out what is wrong and how to fix it, but also enables helpers to pass on some of their own diagnostic and intervention skills” (Schein, E. H. 1990, p. 60). Curuksu (2018) viewed the process approach as a joint learning process between the client and consultant in which the client is the expert on the *subject* while the consultant is the expert on the *process*.

As Schein (1990, 1995, 1997), Trottier (2012) and Curuksu (2018) pointed out, the process consulting approach to strategic consulting differs substantially from the preceding approaches that are both analytic and reductionist. The 10 sampled articles addressing process consulting described a range of differing methodologies, each of which is unique while still having some similar foundational characteristics. Table 1.16 identifies the sampled articles on this approach and the methods covered in the analysis of the 10 articles.

Table 1.16

Process Consulting Approach Sample

Articles	Topics covered	
Dettmer, H. W. (1998). **(Chapters 2, 5, & 7)**	• Current reality trees • Future reality trees	• Soft systems methodology • System Dynamics

Jackson, M. C. (2019). **(Chapters 8, 9, 11, 12, 13, 15, & 16)**	• Interactive planning • Operations research • Organizational cybernetics • Socio technical systems	• System of systems methodology • Theory of Constraints • Viable Systems Model

As Curuksu (2018) saw it, the core idea underpinning the process consulting approach is the belief that the client brings most of the expertise to resolve a strategic need, while the consultant provides the framework and methodologies to uncover solution ideas. Traditional strategy consultants, as Burtonshaw-Gunn (2010) and Curuksu (2018) stated, view the process approach to consulting as radically more open than the expert or doctor patient approach.

By its very nature, process consulting for Burtonshaw-Gunn (2010), Meschi (2017) and Curuksu (2018) drew into question the very legitimacy of the consulting industry. As Curuksu (2018) asserted, process consulting undermines both the values and ethics of the expert and doctor patient approaches to strategy consulting and brings into questioning the value of external consulting itself. Consequently, traditional strategy consulting firms have not engaged in process consulting approaches.

Emergent Consulting Approach Literature

The emergent approach to strategy consulting according to Trottier (2012) is not focused on any specific need or problem but is rather focused on continual discovery and learning to deal with a continually dynamic reality. The emergent approach by its very nature is thus even more radical than the process consulting approach and, by not being problem centric, more open as well. Table 1.17 identifies the sampled articles, methods, and topics covered in the analysis of the 5 articles.

Table 1.17

Emergent Consulting Approach Sample

Articles	Topics covered	
Trottier, P.A. (2017). Trottier, P.A. (2012). Trottier, P.A. (2015).	• Emergent Strategy • Emergent consulting	• Emergent Organizational Development • Emergent Change

Downs, A., Durant, R., & Carr, A. N. (2003). James, M. (2018).	• Emergent strategy development for organizations

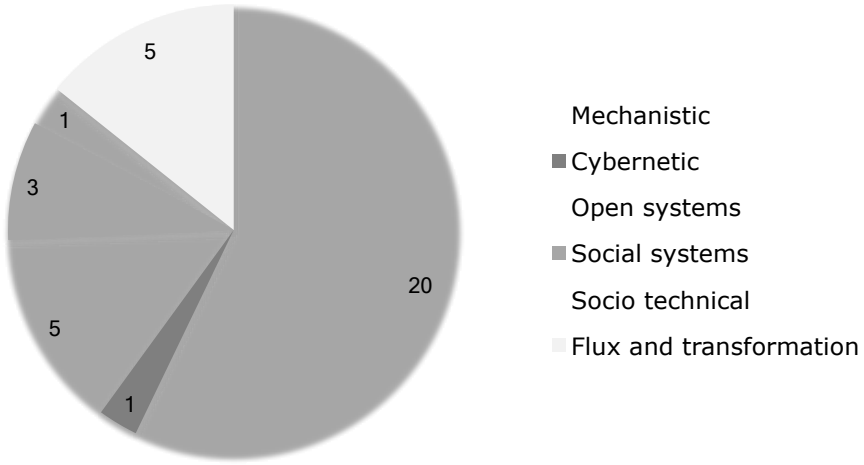
A critical distinguishing characteristic of the emergent approach, as Trottier (2012) observed, is its current focus in real time on an emergent reality that differs from the process consulting approach's focus on the past-to-future state of social systems. The emergent approach is more focused on the dynamic and evolving characteristics of social systems than the other approaches to strategy consulting. It is also radically open and relies on a very high level of client engagement for success. By its very nature, the emergent approach, like the process consulting approach, draws into question the legitimacy of the consulting industry and undermines both the value and ethics of the expert and doctor patient approaches to strategy consulting. Consequently, traditional strategy consulting firms have not adopted the emergent approach.

Data Analysis

The most prevalent worldviews among the 35 sampled articles from the four clusters of strategy consulting were the mechanistic, flux and transformation, and open systems worldviews. The mechanistic perspective by itself accounted for 57% (20) of the 35 sampled articles. The learning systems, ecological systems, culture, political, psychic prison, domination, socio-ecological, pragmatic and metamodern worldviews were absent from the sampled articles.

Figure 1.12

Distribution of Worldviews across Articles



The 35 sampled articles covering the four differing clusters of strategy consulting engagements were all theoretical and practical in nature. This can be attributed to the fact that strategy consulting consists of both a very theoretical foundation as well the need for practical guidance on how these theories should be applied in practice in consulting engagements. Considering the distribution patterns across the four differing clusters of consulting engagements, a predisposed picture emerges of the distribution of worldviews. *Expert strategy consulting* approaches, in which an expert is brought in to resolve a problem, are predisposed towards a mechanistic worldview with (10) of the 10 articles accounting for this worldview. Similarly, the *doctor patient consulting* approach to strategy consulting in which consultants both diagnose and attempt to treat the problem are predisposed to a mechanistic worldview with (10) of 10 articles accounting for this worldview. *Process consulting* approaches reflected a much more diverse perspective, including open systems, cybernetic, socio-technical, and social systems worldviews. The *emergent consulting* approach to consulting was totally predisposed to the flux and transformation worldview with (5) of 5 articles accounting for this worldview.

Figure 1.13

Distribution of Worldviews across Strategy Consulting Clusters

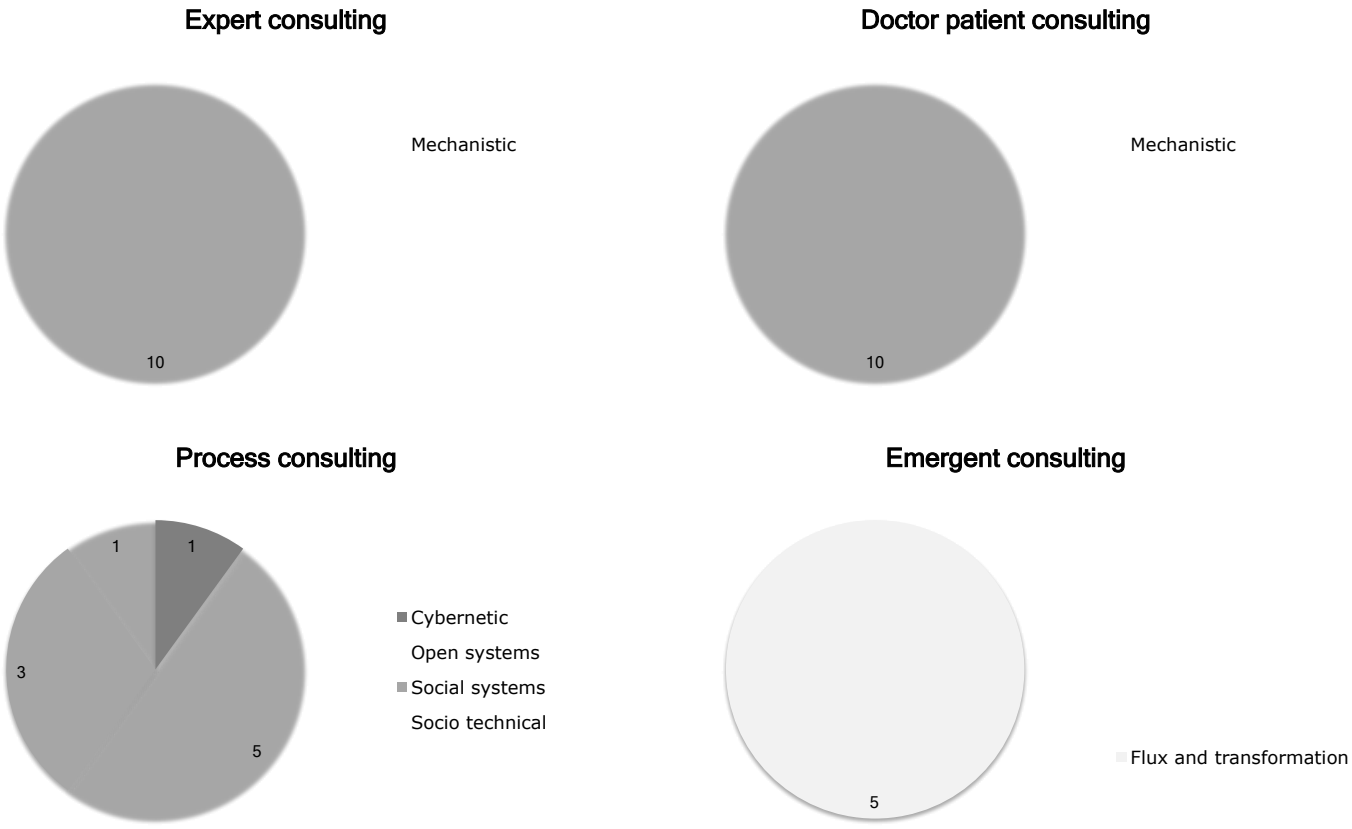
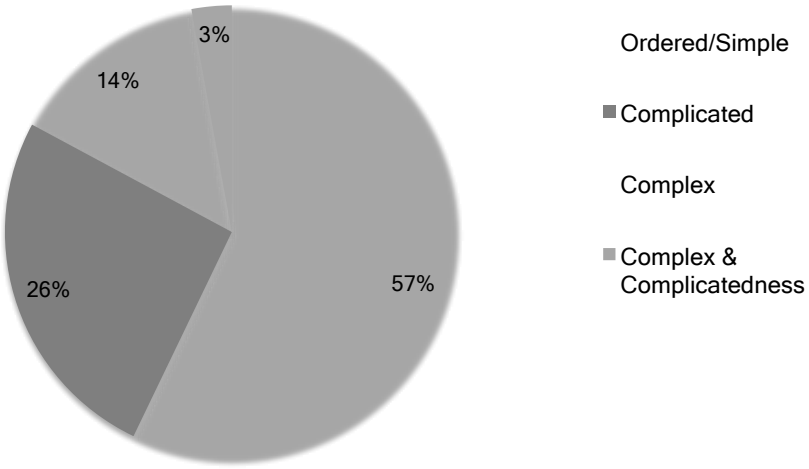


Figure 1.13 shows that the expert, doctor patient, and emergent approaches to strategy consulting rely on a singular worldview, while process consulting embraces a more pluralistic approach to worldviews. Focusing on the ontology of the 35 articles and on how they describe cause and effect, a number of observations must be mentioned. First, the majority of the articles, 20 of 35, describe an ordered and simple view of cause and effect in which causality is regarded as tightly coupled, logical, repeatable, and predictable. The second most dominant view was the complicated perspective with 9 of 35 articles regarding cause and effect to be separated by space and time and not immediately knowable. A complex understanding of cause and effect could be attributed to 5 of 35 articles in which cause and effect are considered as incoherent and only retrospectively known. 1 of the 35 articles said

that cause effect are separated by both space and time, while at the same time being largely unknowable and incoherent.

Figure 1.14

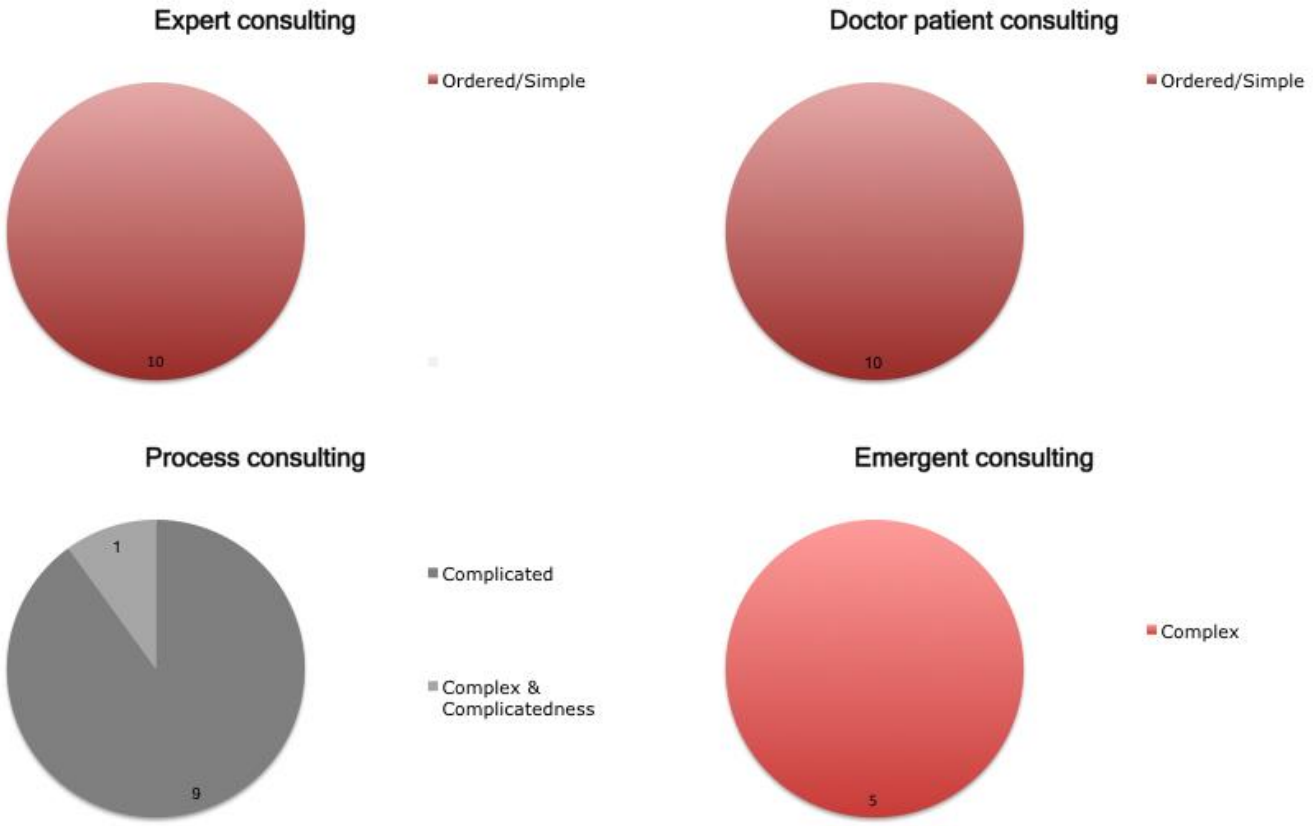
Distribution of Ontologies in the Articles



The distribution of ontologies across the articles indicates that 4 differing ontologies were prevalent in the 35 purposefully sampled articles. When considering the distribution of worldviews across the four differing clusters of consulting engagements, a different picture emerges when viewing the ontological distributions. Expert strategy consulting engagements are predisposed towards a simple and ordered ontology with 10 of the 10 articles accounting for this ontology. The doctor patient approach is also predisposed to a simple and ordered ontology with 10 of 10 articles describing this ontology. Process consulting, on the other hand, was predisposed to a complicated ontology with 9 of the 10 articles describing this ontology, while the emergent approach to consulting was totally predisposed to the complex view of ontology with 5 of 5 articles considering cause and effect to be incoherent and unknowable.

Figure 1.15

Distribution of Ontologies across Strategy Consulting Clusters



The distribution of ontologies across the four differing approaches to consulting indicates that the expert, doctor patient, and emergent approaches may be more suitable to differing types of problems and situations that exhibit both complex and complicated characteristics.

The sampled articles did not contain any strategic consulting approaches that held a disordered or chaotic view of cause and effect. The exclusion of these two perspectives of ontology is not surprising, as consultants all purport to resolve chaos and disorder by imposing a structured and logical approach to deal with strategic challenges in social systems.

Expert Consulting Approach

Table 1.18 provides an overview of the contributions of the articles sampled for the expert consulting approach. The characteristics of this approach demonstrate that expert consulting seeks to develop a repeatable and standardized approach to strategic consulting engagements.

Table 1.18

Characteristics of the Expert Consulting Approach

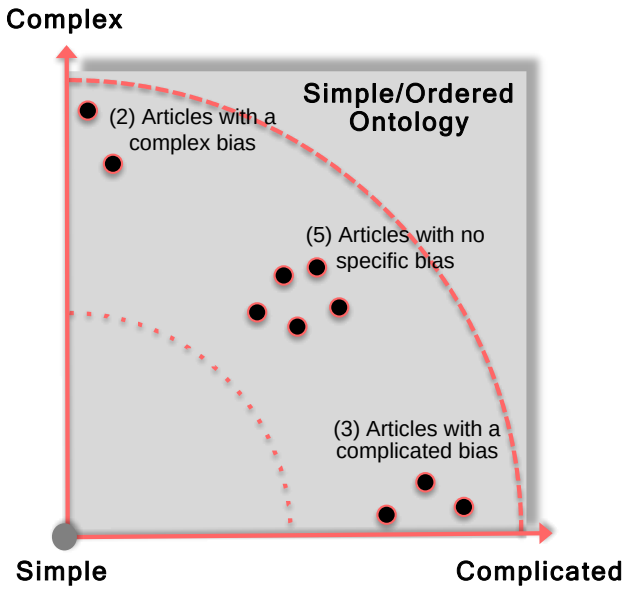
Worldview	Characteristics	References
Mechanistic (All of the articles on the expert consulting approach in the sample adopted a mechanistic worldview)	• Problem based • Scientific management approach to consulting • Generic models, templates, and assessment tools • Parameters of the problem are assumed as known • Process is data driven and assumes strong causality • Highly structured processes • Rules and regulations are assumed to govern the consulting process and social systems functioning • Ordered simple logic is used to explain complex and complicated characteristics of social systems	Burtonshaw-Gunn (2010). **(Chapter 4)** Curuksu, (2018). **(Chapters 2, 5, 8, & 9)** Rasiel, E. M., Friga, P. N., & Enriquez,J. (2001). **(Chapters 1, 2, 3, & 4)**

As was depicted in Table 1.15 the mechanistic worldview is dominant in the expert consulting approach literature with 10 of the 10 articles accounting for this worldview. Ontologically, as shown in Figure 1.15, the *expert consulting* approach is at the same time dominated by a simple and ordered ontological view of cause and effect. It must be noted that even when considering complex and complicated characteristics of social systems, the literature presented defaulted to using simple cause and effect logic to try to explain dynamic and structural complexity in social systems. Moving beyond the ontological characterization of the literature, it was possible to create finer granularity of the classification by classifying the main organizing principle that articles covered. Of the 10 articles, 5 had no specific predisposition, indicating that they were consistent with an ordered and simple ontological perspective of organization. A complicated view of organizing was found in 3 of the 10 articles. The significance of this finding was that, even though these articles were simple and ordered in their ontological orientation, they fell further along the complicated continuum than the 5 preceding articles. Finally, 2 articles explained complex dynamics of social systems through a simple and

ordered ontology, indicating that they were slightly higher-ranking in terms of complex characteristics than the other articles in the sample. This further distinction allows for slightly finer granularity and highlights that, even within a single ontological viewpoint, content can vary in addressing both the complex and complicatedness along both the (y) axis of simple to complex and along the (x) axis from simple to complicated. Figure 1.16 illustrates how the 10 articles are distributed within the simple and ordered ontological classification.

Figure 1.16

Distribution of Organizing Characteristics for Expert Consulting



The distribution of the organizing characteristics of articles shows that even within a single ontology, articles, methods, and techniques vary in addressing complex and complicatedness in social systems. Focusing on the epistemology of the articles, it is clear that the expert consulting approach to strategy consulting is rule-driven. Ten of the 10 articles could be classified as having a rule-driven epistemology. When considering the context of the articles, 6 of the 10 articles were retrospectively focused on the analysis and interpretation of data that had occurred in the past, while only 4 of the 10 articles were future-focused. Last, when evaluating the role of automation, 10 of the 10 articles showed

that information acquisition was supported by automation, while 9 of 10 articles indicated that the data analysis phase of expert consulting engagements was supported by automation. Only 1 of the 10 articles indicated that data analysis could be fully supported by automation in expert strategy consulting engagements.

The analysis of the expert consulting approach to strategic consulting engagements revealed that this approach is well suited to addressing mechanistic problems in social systems. The data clearly agreed that the expert approach adopts a purely mechanistic worldview and accordingly engages in sense making activities based on this worldview. The expert approach thus works best when the parameters of any social systems challenge are clearly defined, known, repeatable, highly causal, and tightly coupled. In the real and messy world of social systems, this is, however, seldom the case. The chance of success of the expert approach thus depended on the clients' ability to correctly identify a problem to be exclusively mechanistic, simple, and ordered. Once such a problem has then been identified through sense making, it must then be clearly communicated to the consultants, who must have the appropriate skills and expertise to address the simple problem with mechanistic tools and techniques. *Problem specification* is thus a crucial step in expert strategy consulting engagements. Trottier (2012) reported that less then 50% of expert consulting engagement recommendations are typically implemented in reality. This fact reinforces the view that expert consulting engagements are not well suited to dealing with either complex dynamics or complicatedness in social systems. How we make sense, define, specify, and identify problems is thus pivotal to selecting methods, techniques, and approaches that could assist in navigating the dynamics and complicatedness of social systems. Of importance, the analysis showed that one of the most popular approaches to strategic consulting in social systems has limited applicability in the real world.

Doctor Patient Consulting Approach

Table 1.19 provides an overview of the contributions of the articles sampled for the doctor patient consulting approach.

Table 1.19

Characteristics of the Doctor Patient Consulting Approach

Worldview	Characteristics	References
Mechanistic All of the articles on doctor patient consulting in the sample adopted a mechanistic worldview	• Problem-based • Generic assessment tools & templates • Generic consulting frameworks for engagements • Parameters of the problem must be uncovered by the consultant • Process is data driven and assumes strong causality in social systems • Highly structured processes • Rules and regulations are assumed to govern the consulting process and social systems functioning • Ordered, simple logic is used to explain complex and complicated characteristics of social systems • Assumes that social system participants will not distort or withhold relevant information in the discovery processes • Assumes that value-free, objective inquiry is possible • Generally assumes that the social system under investigation has a problem • The doctor patent approach superimposes the consultant's model of an ideal social system on the solution	Burtonshaw-Gunn (2010). **(Chapter 5)** Chereau & Meschi (2017). (Chapters 2, 3, 4, 5, 6 & 7) Curuksu (2018). **(Chapters 3 & 6)** Kaplan, R. S. (2005). **(Balanced scorecard & McKinsey 7-S)**

The characteristics of the doctor patient approach to strategic consulting demonstrate that this approach seeks to use templates and frameworks to develop *a standardized approach* to strategic consulting engagements.

As depicted in Figure 1.13, the mechanistic worldview is dominant in the doctor patient approach 10 of the 10 articles accounting for this worldview. Ontologically, as shown in Figure 1.15, the doctor patient approach was also completely dominated by a simple and ordered ontological view of cause and effect in the same way as the expert consulting approach. In total, of the 10 articles, 8 had no specific organizing predisposition, indicating that they were consistent with an ordered and simple ontological perspective of organization, while a complex view of organizing was found in 2 of the 10 articles. The significance of this finding was that even though these articles were simple and ordered in their ontological orientation, they fell further along the complex continuum than the 8 preceding articles.

Figure 1.17 illustrates how the 10 articles on the doctor patient approach were distributed within the simple and ordered ontological classification.

Figure 1.17

Distribution of Organizing Characteristics for Doctor Patient Consulting

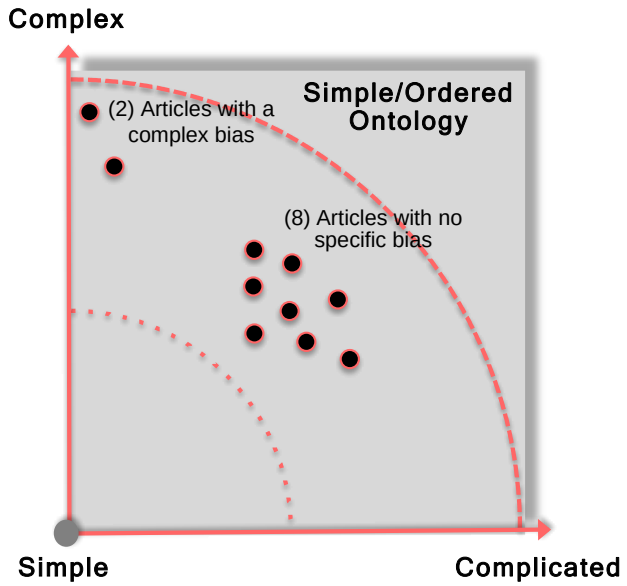


Figure 1.17. The distribution of the organizing characteristics of articles highlights that even within a single ontology, articles, methods, and techniques vary in addressing complex dynamics in social systems.

Focusing on the epistemology of the doctor patient approach, in total (10) of the 10 articles could be classified as having a rule-driven epistemology. When considering the context of the articles, 7 of the 10 articles were retrospectively focused on the analysis and interpretation of data that had occurred in the past, while only 3 of the 10 articles was future-focused. Last, when evaluating the role of automation, 8 of the 10 articles said that information acquisition could be supported by automation, while 2 of the articles implied that the acquisition of data could be made fully automatous in consulting engagements. In total 10 of 10 articles indicated that the data analysis phase of doctor patient consulting engagements could be supported by automation only.

The analysis of the doctor patient approach showed that, similar to the expert consulting approach, this approach is also well suited to addressing only mechanistic problems in social systems. The consultant clearly assumes a great deal of responsibility (and power) in this approach, as the consultant is responsible for both the diagnosis and the prescription. Like the expert approach, the doctor patient approach works best when the parameters of any social systems challenge are known, repeatable, highly causal, and tightly coupled. The chance of success of the doctor patient approach thus depends on the consultant's ability to correctly identify a mechanistic and simple challenge linked to a specific organizational symptom that could be solved through a highly causal intervention. Thus, sense making and problem specification is a crucial step in doctor patient engagements, as the methods and techniques in this consulting approach are ideally suited to addressing only highly causal, simple, and ordered problems in social systems. Trottier (2012) said that similar to the expert approach, only 50% of doctor patient consulting engagements' recommendations are typically implemented after a strategy consulting engagement. Also similar to the expert approach, it is clear that the doctor patient approach to strategy consulting is not well suited to dealing with either complex dynamics or complicatedness in social systems. How we make sense, define, specify, and identify problems in social systems is thus pivotal to selecting methods, techniques, and approaches that could assist in navigating social systems. The analysis thus showed that one of the most popular approaches to strategic consulting actually has limited applicability.

Process consulting approach

Table 1.20 provides an overview of the articles sampled for the process consulting approach.

Table 1.20

Characteristics of the Process Consulting Approach

Worldviews	Characteristics	References
Cybernetic	• Problem based	Jackson, M. C. (2019). **(Chapter 13)**

One (1) of the articles in the sample adopted a cybernetic worldview.	• Frameworks to aid the design and diagnosis of social systems • Stakeholders engagement to improve evaluation processes • Inputs, transformation processes and outputs are connected to the environment through feedback loops and control mechanism • Social systems are tightly coupled and consist of an arrangement of parts, components, and subsystems, that are sensitive to changes in each other and in the operational environment	
Open systems (Five (5) of the articles in the sample adopted a open systems worldview.)	• Problem based • Frameworks to aid the design and diagnosis of social systems • Thinking tools to aid the design and diagnosis of social systems • Stakeholders engagement to improve evaluation processes • Social systems as open systems are self-maintaining structures • Hierarchies, spanning from small to large scales • Components have relatively few sub-components • Sub-components are co-adapted to specific complementary functions in the whole, with emergent affordances and functions • Low redundancy: components cannot generally serve as substitutes for other components	Dettmer, H. W. (1998). **(Chapters 2, 5, & 7)** Jackson, M. C. (2019). **(Chapters 9 & 11)**
Socio-technical (One (1) of the articles in the sample adopted a socio-technical worldview.)	• Problem based • Thinking tools to aid the design and diagnosis of social systems • Stakeholders engagement to improve evaluation processes • Social systems consist of two jointly independent but correlated systems -- the social and technical • The product of any social system is the result of the interactions between the technical and social system • System success is dependent on the psychological needs of individuals in the system	Jackson, M. C. (2019). **(Chapter 12)**
Social systems (Three (3) of the articles in the sample adopted a social systems worldview.)	• Problem-based • Participative frameworks to aid the design and diagnosis of social systems • Participative frameworks and methodology to ensure stakeholders' engagement to improve evaluation and design processes • Systems and individuals in social systems are purposeful and have their own agendas	Jackson, M. C. (2019). (**Chapters 8, 15, & 16)**

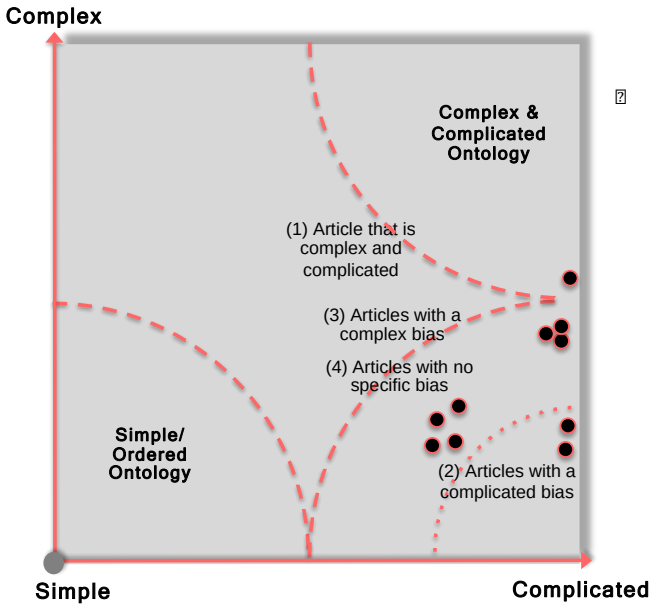
	• Components and actors are versatile and engaged in multi-level interactions with few constraints. • Social systems are hotbeds for innovation and adaptation • Social systems are strongly interconnected, seamless webs with cascading effects • Social systems are hard to simplify	

The characteristics of the processes consulting approach demonstrate that this approach to consulting seeks to use different worldviews and processes in different contexts to guide clients and consultants through a joint learning process to address social systems challenges.

As depicted in Figure 1.13 process consulting has a greater diversity of worldviews than either of the traditional approaches to consulting. Of the 10 articles analyzed on the process consulting approach, 5 had an open systems worldview, 3 a social systems worldview, 1 a social-technical worldview, and 1 a cybernetic worldview. Ontologically, as shown in Figure 1.15, the process consulting approach was overridingly focused on complicatedness and causes and effects that are co-producing and separated by space and time. In opposition to the expert and doctor patient approaches, many of the process consulting approaches, although primarily complicated in their ontological orientation, presented with a high degree of complex organization, indicating that although most of the approaches were primarily complicated ontologically, they also addressed many aspects of complex dynamics in social systems. Out of the 10 articles, 9 could be classified as ontologically complicated, while one could be classified as both complex and complicated. Four (4) of the 10 articles could be classified as having a balanced view of organization consistent with their ontological perspective, 2 were more predisposed to complicatedness within this perspective, and 4 were more predisposed to complex organization. Figure 1.18 illustrates how the 10 articles on the process consulting approach to strategy consulting were distributed along the complex and complicated continuums.

Figure 1.18

Distribution of Organizing Characteristics for Process Consulting



The distribution of the organizing characteristics of the articles shows that the process consulting approach is suited to addressing not only complicated characteristics in social systems but also complex dynamics in certain methods and approaches.

Focusing on the epistemology of the process consulting approach, in total 10 of the 10 articles could be classified as having a rule-driven epistemology. When considering the context of the articles, 1 of the 10 articles was retrospectively focused on the analysis and interpretation of data that had occurred in the past, while 9 of the 10 articles were future focused. Last, when evaluating the role of automation, 10 of the 10 articles asserted that information acquisition could be supported by automation. Similarly, 10 of the 10 articles also alluded to the possibility that the data analysis phase of process consulting engagements could be supported by automation.

The analysis of the process consulting approaches to strategic consulting engagements found that this approach has much more versatility than the traditional expert or doctor patient approaches,

and that many of the methods and techniques used in process consulting approaches are suited to addressing both complicated and complex challenges in social systems. From a process consulting perspective, the emphasis is on how things occur or are done in contrast to the expert and doctor patient approaches which focused on why things occur with a reductionist mindset. Although this distinction may seem trivial at first, it is important when one considers the uniqueness of any social system and that the context-specific factors drive success and failure of these systems. When considering why things have occurred, an inherently causal model of reality is assumed to identify repeatable causal patterns. In contrast, understanding how things occur identifies why things can both succeed and fail at the same time in the same social system and also allows for understanding the system on its own terms. Accordingly, as earlier discussed, the process consulting approach uses differing worldviews to understand both the specific contexts and the situations that are unique to each social system and context.

The analysis of the process consulting approach, therefore, emphasizes that differing worldviews are clearly required to understand how things occur in different contexts and situations and in differing social systems in order to design interventions that aid organizations to navigate the complexities of their social reality. This approach, therefore, depends on how diverse the consultant's knowledge is of approaches, methods, and techniques in order to select the most appropriate methods for the situation and context. Sense making is thus a vital activity in process consulting, as it aids in matching the appropriate methods, tools, and techniques to the appropriate situations and contexts.

Emergent consulting approach

Table 1.21 provides an overview of the contributions of the articles sampled for the emergent consulting approach.

Table 1.21

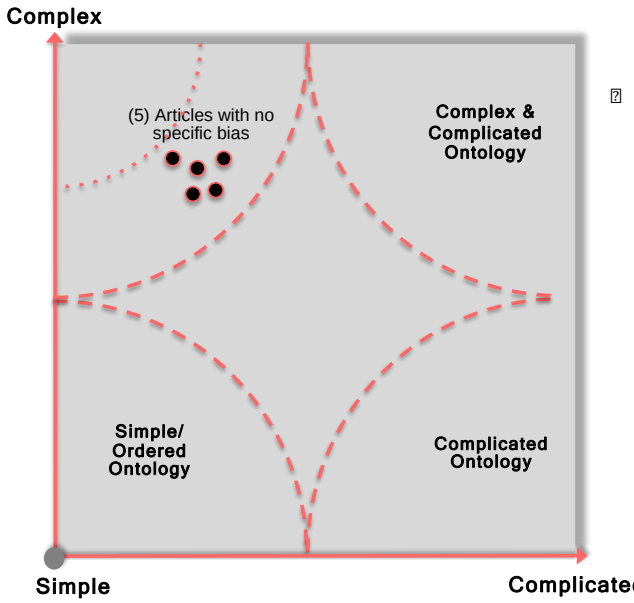
Characteristics of the Emergent Consulting Approach

Worldviews	Characteristics	References
Flux and transformation (All of the articles on the emergent consulting approach in the sample adopted a flux and transformation worldview.)	• Emergent-driven, creation-based approach • Networked-based and not hierarchal • Basic principles and concepts lead to emergent strategy • Probes sense-and-respond approach to strategy • Continual cycle that drives organizational strategy • Deep engagement with client • Open approach to consulting • Continual learning cycle for both the client and consultant • Forces shaping strategy consulting are in a permanent state of movement • Logics of change and culture shape every strategy consulting engagement	Trottier, P.A. (2017) Trottier, P.A. (2012) Trottier, P.A. (2015) Downs, A., Durant, R. & Carr, A. N. (2003) James, M. (2018)

The characteristics of the emergent consulting approach demonstrate that this approach seeks to guide clients and consultants through a joint learning process to address social systems challenges. As was depicted in Figure 1.13, the flux and transformation worldview is dominant in the emergent approach to strategy consulting with 5 of the 5 articles accounting for this worldview. Ontologically, as shown in Figure 1.15, the emergent approach to strategy consulting was completely dominated by a complex ontological view of cause and effect. In total, of the 5 articles all 5 had no specific organizing predisposition, indicating that they were consistent with a complex ontological perspective of social systems. Figure 1.19 illustrates how the 5 articles on the emergent approach were distributed within the complex ontological classification.

Figure 1.19

Distribution of Organizing Characteristics for Emergent Consulting



The distribution of the organizing characteristics of the articles shows that the emergent approach to strategy consulting is primarily focused on addressing complex characteristics in social systems.

Focusing on the epistemology of the emergent approach, in total 5 of the 5 articles could be classified as having a heuristic-based epistemology. When considering the context of the articles, 5 of the 5 articles were future-focused. Last, when evaluating the role of automation, 5 of the 5 articles showed that information acquisition could be supported by automation. Similarly, 5 of the 5 articles also alluded to the possibility that the data analysis phase of emergent consulting engagements could be supported by automation.

Analysis of the emergent approach demonstrated that this approach is a complexity, science-based perspective on consulting. The approach essentially relies on a probe-sense-and-respond model to respond to an unfolding environment. While this approach to consulting engagements and sense making is suitable for dealing with some of the dynamic aspects of social systems, it does not go far enough to address complicated characteristics. The influence of the emergent consulting approach

should thus be viewed as being concentrated in the complex corner. Proponents of this approach to strategy consulting, however, view the approach more generally as dealing with high complexity, yet they fail to recognize or admit that complex systems change qualitatively along the complicated axis. In summary, then, it must be noted that while the emergent approach to strategy consulting may be powerful in dealing with the dynamic components of social systems, it fails to address complicatedness in social systems.

Discussion

Having established through analysis foundational knowledge about the differing approaches to strategic consulting, a shared understanding is now necessary in order to understand the cumulative approach to ontological mapping and sense making across strategy consulting. Figure 1.20 illustrates how the 35 sampled articles on strategy consulting can, through cursory mapping, be distributed along the simple to complex and simple to complicated axes of classification.

Figure 1.20

Aggregate Distribution of Ontologies for Strategy Consulting

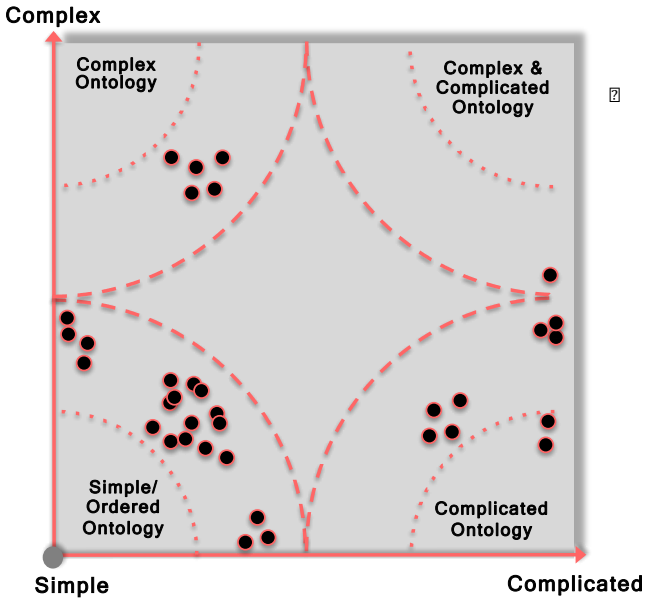


Figure 1.20 charts out the theoretical and practical approaches to strategy consulting based on the two ontological qualities of complex and complicatedness. The corners of the chart describe four ideal system types from an ontological perspective. The sample data showed that the majority of strategy consulting approaches deals with the simple context and employs a simple and ordered view of reality in sense making. The data also indicates that the approaches to sense making in strategy consulting are clustered around three primary perspectives: first a simple and ordered ontology, then a complex ontology, and last around a complicated ontology. It is self-evident that even though the mapping presents the sampled articles and approaches as mutually exclusive, transitory categories must exist as described by Andersson and Törnberg (2018). Based on Andersson, et al.'s (2014) interpretation, Figure 1.21 presents the data according to their spectrum of overwhelming systems.

Figure 1.21

Ontologies according to the Spectrum of Overwhelming Systems

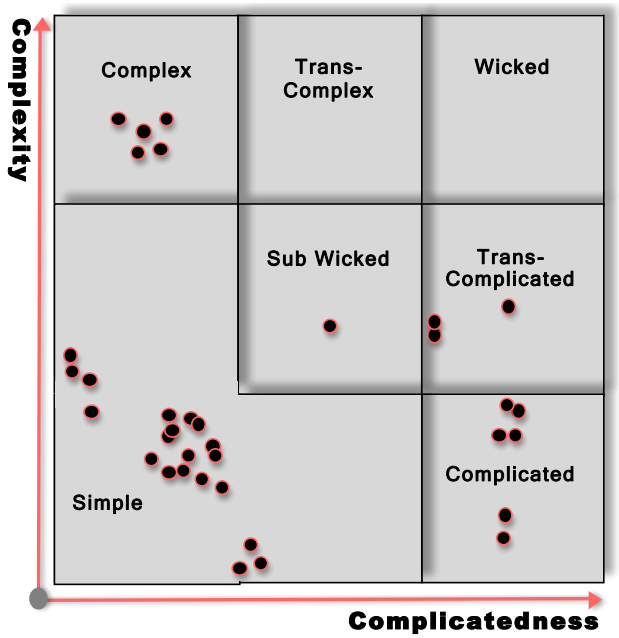


Figure 1.21 indicates how the sampled articles can be mapped according to Andersson, et al. (2014) spectrum of overwhelming systems. The aggregate view of data mapped to Andersson and Törnberg's (2018) conception of complexity confirms their suspicion that strategy consulting and management sciences have cast the complexities of social systems into three domains: simple, complex, and complicated. The data also shows that the expert and doctor patient models of strategy consulting develop formal and powerful models of social systems in the simple domain, based on strong assumptions about agent rationality and equilibrium. This approach deals with only a small component of social systems and fails to deal with complex dynamics and complicatedness. The emergent approach to strategy consulting, as the data shows, deals with and makes sense of the dynamic aspects of social systems but fails to deal with complicatedness. The process consulting approach, while being heavily focused on the complicated aspects of social systems is, however, the only approach to strategy consulting that starts to address both complex and complicated dynamics. Process consulting, more generally termed as systems thinking, starts out with a complicated focus, and is thus the only approach that can be considered to addresses both complex and complicatedness in strategy consulting engagements. Figure 1.22 illustrates the differing domains and systems contexts to which the differing approaches of strategic consulting are suited, based on the analysis.

Figure 1.22

Mapping of Consulting Approaches

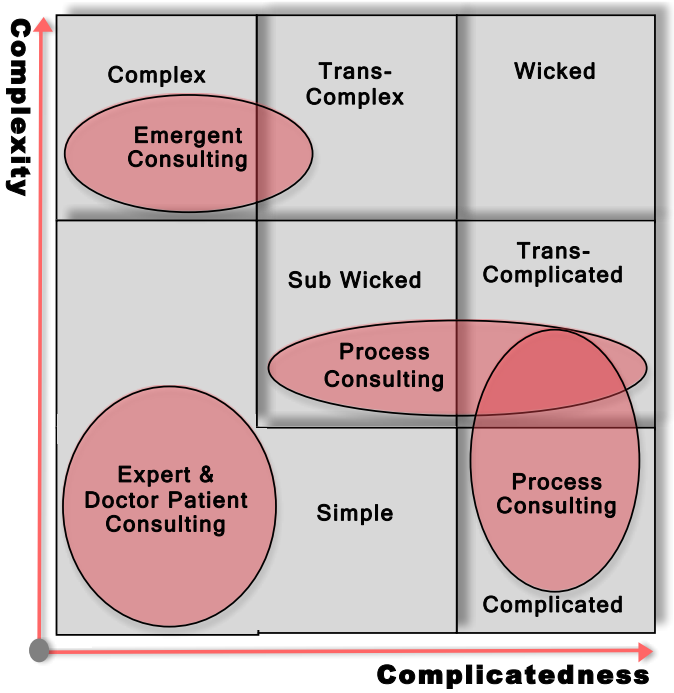


Figure 1.22 indicates how the differing approaches to strategic consulting can be mapped to the spectrum of overwhelming systems.

The data analysis accordingly shows that the matrix developed by Snowden and Stanbridge (2004) and Snowden (2005) does not follow an accurate conception of the ontology of systems thinking. System's theory is incorrectly assumed by Snowden and Stanbridge (2004) and Snowden (2005) to deal only with an ordered ontology. The data analysis in this study has clearly shown that this argument does not hold water because some of the systems theory approaches have been clearly identified as spanning both the complex and complicated domains.

Conclusions

The traditional expert and doctor patient consulting approaches, which are the most popular in the consulting industry, drag consulting engagements towards the simple corner of ontological mapping.

The output of such engagements cannot address the complexity of social systems that have been shown to be both complex and complicated at the same time. The expert and doctor patient approaches, which are based on a mechanistic worldview, are clearly inadequate in the context of complexity. Similarly, the emergent approach to strategy consulting was shown to be more suited to the dynamic components of social systems, moving the focus from the complicated and complex corner to the complex domain. This approach is viewed as a relativist, trial and error approach in which client engagement is vital in dealing with an emergent reality. By emphasizing the complex in this way, the emergent approach to consulting disregards the inherent structural complexities of social systems. Given the inherent complicatedness and complex dynamics of social systems, the only real and plausible alternative is to attempt to navigate complexity through process consulting approaches. Process consulting is, however, considered by the mainstream consulting houses to be an anti-strategy approach because it threatens the logic of the industry. It was also shown that when consulting engagements' recommendations are not adopted or fail, they are simply dismissed as not having been implemented or having been implemented poorly. While this notion is difficult for classical strategy consultants to accept, the data analysis indicated that classical approaches are suited only to mechanistic problems. Navigation by process consulting is thus the only plausible approach to complexity. Navigation in this sense is different from the doctor patient and expert consulting approaches because it relates to determining how to steer *through*, selecting the correct approach for the context and then allowing the solution to emerge by guiding the client experts through the processes. This type of experimentation is not the relativism of the emergent approach, as it requires iterative sense making in different situations and contexts in order to select the best approaches for the context. Despite technologies' impact on the world, it was also shown that technology has been only an enabling factor, as it was primarily utilized to support information acquisition and to support analysis in consulting engagements. While technology can be applied to understanding certain aspects of dynamic

and complicated social systems, the analysis showed that sense making is still an inherently human-driven process, which is vital to understanding social systems.

The process consulting approach was shown to use differing worldviews to understand both the specific context and situations unique to each social system. The analysis of the process consulting approaches therefore emphasized that differing worldviews are clearly required to understand how things occur in different contexts and situations and in differing social systems, in order to design interventions that aid organizations and social systems to navigate the complexities of their social reality. Therefore, the process consulting approach depends on how the consultant selects what they deem to be appropriate methods and tools for the analysis. This depends upon how diverse the consultant's knowledge is of approaches, methods, and techniques. Sense making is thus a vital activity in process consulting, as it aids in matching the appropriate methods, tools, and techniques to the appropriate situations and contexts in social systems.

In summary, this chapter has identified and tested an approach to classifying strategic consulting engagements based on specific worldviews. The worldviews were also clearly identified as being linked to specific types of consulting engagements, demonstrating their specific applicability to differing social systems, contexts, and states. The research further confirmed the postulate of Andersson, et al. (2014) that sense making and consulting engagements cast the different perspectives of social systems to the different quadrants of the spectrum of overwhelming systems. In doing so, the spectrum of overwhelming systems provided a conceptual framework and reality map for understanding social reality. Some of the transitory categories, namely the sub-wicked and trans-complicated, were shown in the analysis to be amenable to process consulting approaches. However, it is still clear that the spectrum of overwhelming systems ignores the role of worldviews in sense making.

The analysis provided the groundwork to explain how to identify worldviews, methods, and techniques that span into transitory categories to address systems and challenges in these areas. What is still required, and is missing from the description of these transitory systems categories, is an

understanding and explanation of which worldviews are appropriate in these different transitory contexts in order to build contextually appropriate understandings through conscious, multi-ontological sense making. The spectrum of overwhelming systems also ignores other contexts that may be of relevance, such as chaos and disorder, which are not characterized in this sense-making framework.

While this analysis proved useful in understanding which consulting approaches were more suited to which systems context and states, the analysis also highlighted that sense making is still a vital and important component when navigating social systems. The analysis in this chapter has thus laid the groundwork for developing a new approach to sense making which addresses the shortcomings of current approaches to multi-ontological sense making.

CHAPTER 7: THEORY AND THOUGHT EXPERIMENT

Social systems management, interventions, and consulting engagements all require a conscious and iterative approach to multi-ontological sense making. Although frameworks for sense making were identified, they were shown to be to be inaccurate because, grounded in a complicated or complex perspective of social systems, they did not address the complicatedness and complex dynamics of social systems. Worldviews were also shown to be a vital component of sense making and the foundation upon which sense making occurs. Differing worldviews with their particular techniques and methods, were also identified as being more applicable to sense making in differing situations, times, and contexts. With worldviews as the overarching lenses, it is possible to identify the knowledge orientation of differing approaches, theories, methods, tools, and techniques as well as their particular area of applicability to different types of problems, systems states, and situations in social systems. The known sense making frameworks, however, disregard the importance of worldviews and provide no guidance on how worldview, as a vital component for understanding social systems contexts, domains, and states, should be incorporated into multi-ontological sense making. Multi-ontological sense making in irreducible social systems clearly requires the use of different worldviews to generate contextually appropriate understandings and insights for action in different systems states. Based on the shortcomings that were developed in this study through the analysis of Chapters 2, 3, and 5, theory could be developed by synthesizing the findings to address the current deficiencies in multi-ontological sense making. Chapter 7 presents a new theory of multi-ontological sense making based on the previous findings and analyses of Chapters 2, 3, 4, 5 and 6, along with a thought experiment to demonstrate the proposed theory's application in practice.

Worldviews and Social Systems Domains

The analyses in Chapters 2, 3, and 5 identified nine domains of systems functioning from existing literature: the simple, complex, complicated, trans-complex, trans-complicated, sub-wicked,

wicked, chaos, and disorder. Figure 1.23 maps the nine domains of social systems functioning identified in the literature by combining the Cynefin framework and spectrum of overwhelming systems diagrams.

Figure 1.23

Nine Domains of Systems Functioning

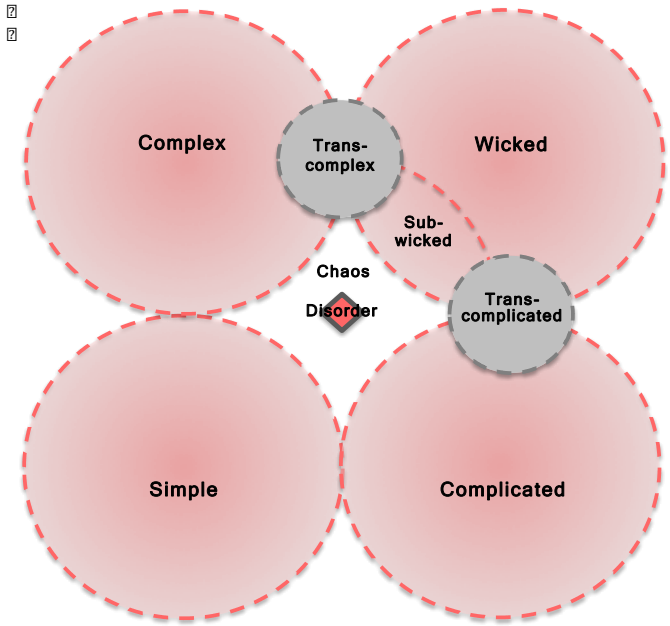


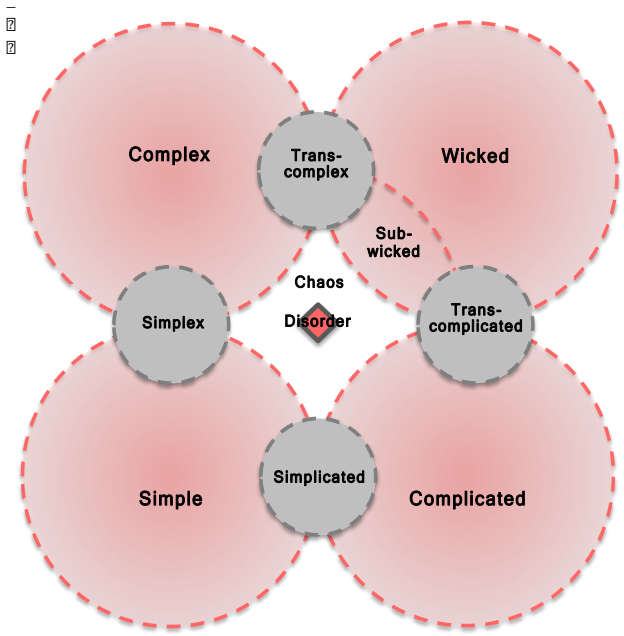
Figure 1.23 provides a cursory mapping of the nine domains of systems functioning which have been identified in the literature. Andersson, et al. (2014) and Andersson and Törnberg (2018) introduced the transitory categories of *trans complex* and *trans complicated* which were not identified in the Cynefin framework. These domains were shown to be useful because they explained how methods and techniques encroach upon the boundaries established by the Cynefin framework in order to address categories of systems and challenges to which they have not been assigned. Importantly, however, they also indicate that in reality, systems seldom present as purely simple, complex, or complicated as Snowden's Cynefin framework proposes.

Domains of Systems Functioning

The simple, complex, and complicated contexts are to a large degree idealized systems states that are extremes, as systems invariably, in the real world, contain a mixture of properties. It was shown in Figures 1.16 and 1.17 that some approaches to the simple context are organized more around a complex or complicated orientation. Similar transitory categories must therefore also exist between the simple and complex and between the simple and complicated domains. Figure 1.24 maps the two proposed additional domains of systems functioning.

Figure 1.24

Eleven Domains of Systems Functioning



The additional transitory domains identified above allow for finer granularity in sense making in social systems and for the more accurate mapping of worldviews to the domains of systems functioning.

Mapping Worldviews to System Domains

As discussed in Chapter 4, sixteen meta worldviews exist for forming reality maps about social systems: mechanistic, cybernetic, open systems, organismic, social systems, socio-technical, learning systems, ecological systems, psychic prison, domination, culture, political, flux and

transformation, socio-ecological, pragmatic, and metamodern. Each of the worldviews was shown to be more applicable for understanding differing aspects of social systems in different states of functioning and at different times, creating more clarity and meaning. As was demonstrated in Chapter 6, differing management theories, consulting approaches, methods, tools, and techniques are based on differing worldviews. While the 16 meta worldviews have been identified for developing different reality maps of systems, no mapping exists to identify the different types of systems, contexts, domains, and problem states in which these worldviews will be effective in aiding sense making and ultimately decision making, actions, behaviors, and interpretations of social systems. Table 1.22 matches the 16 meta worldviews to the 11 domains of social systems, functioning, to identify the contexts, problems, and systems to which the identified worldviews have applicability.

Table 1.22

Mapping of Worldviews to Domains

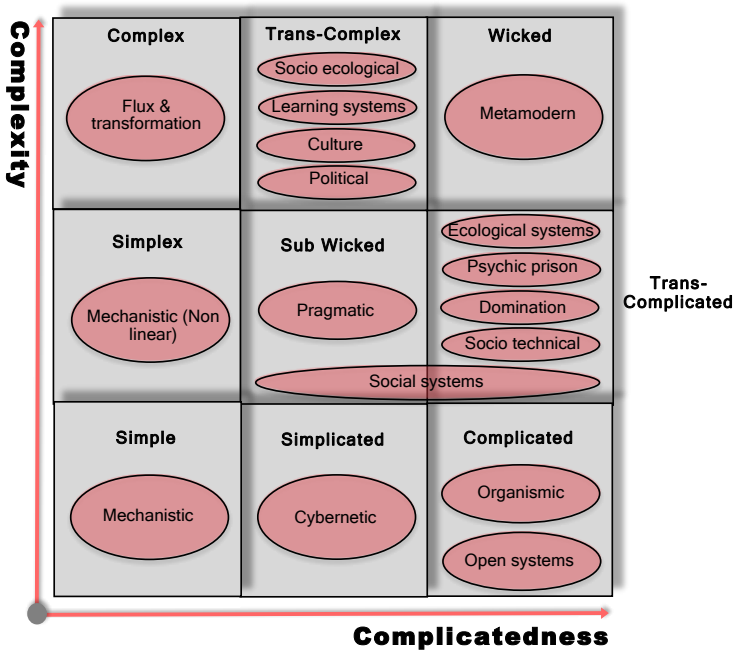
Domain	Applicable Worldviews	Examples of types of systems
Simple	• Mechanistic	Clockwork mechanisms
Simplicated	• Cybernetic	Thermostat system
Simplex	• Mechanistic (Non-linear)	Swinging pendulum
Complicated	• Open systems • Organismic	Organisms, technology
Complex	• Flux and transformation	Herds, flocks of birds
Trans-complicated	• Psychic prison • Domination • Socio-technical • Social systems • Ecological systems	Organizations, colonies
Trans-complex	• Culture • Political • Learning systems • Socio-ecological	Social systems that are relatively un-stratified in their organization, such as social networks

Sub-wicked	• Pragmatic • Social systems	Small human societies
Wicked	• Metamodern	Society, large social systems
Chaos	• Flux and transformation	All systems can descend into chaos
Disorder	• Flux and transformation	All systems can descend into disorder

Having mapped the 16 worldviews to the modified system domains from Chapter 2, a composite picture can now be developed of the mapping worldviews by overlaying the worldviews identified above on a modified version of the spectrum of overwhelming systems (Chapter 2). Figure 1.25 overlays the 16 mapped worldviews to a modified version of the spectrum of overwhelming systems.

Figure 1.25

Worldview Overlay



The first observation that can be made from the mapping above is that the majority of worldviews aid sense making and action in trans-complex and trans-complicated contexts in social systems. Second, it should be noted that the sub wicked domain is not necessarily in the correct place, as the sub wicked domain should rank higher in terms of complexity and complicatedness than the trans domains. Last, and potentially the most significant observation, is that when you consider the examples of systems, which were identified for each domain of systems functioning, the simple, complex, complicated, simplex, and simplicated domains do not deal with human systems. The types of systems identified in the examples for these contexts were derived from the examples and ideas presented by Andersson, et al. (2014), Andersson and Törnberg (2018), Kurtz and Snowden (2003), and Snowden (2005). The simple domain was characterized as dealing with clockwork mechanisms and thus describes *purely* mechanistic systems without human components. The simplicated context described cybernetic feedback systems which are feedback-governed and tightly coupled and do not include human participants. The complicated context was assumed to relate to technology and lower-level organisms and thus does not include humans. The simplex context was shown to consider non-linear mechanistic systems without human components, and finally the complex context discussed by Andersson, et al. (2014), and Andersson and Törnberg (2018) was also shown to consider the dynamics of only simple, rule-governed, emergent behavior, excluding human participants who make irrational, not rule-governed, decisions in any social system. This observation which may seem self-evident, is significant because it implies that these contexts and domains are over simplifications of social systems and thus not applicable to real social systems. As Ackoff (1999) affirmed, the effectiveness of the sense making process is entirely dependent on the degree of fit on the reality map that is used to describe that reality. The simple, simplex, simplicated, complicated, and complex reality maps can certainly be used to map social systems with useful outcomes, but in all probability these outcomes will produce only short-term results due to the limited perspective they build of reality. Congruent with Ackoff's logic, it is thus safe to assume that the use of these contexts in sense making

produces less than optimal results, because critical aspects of the systems are not considered when implementing strategic methodologies, tactical tools, and techniques.

Metamodern Aspectus

The Metamodern Aspectus is a worldview-driven, multi ontological approach to sense making in a metamodern reality. It is both a way of interpreting social reality and a guide to viewing social reality. It assists both with identifying appropriate worldviews to form reality maps of the social world, contexts, and situations and with identifying appropriate methods and techniques for interventions and actions. In complexity, the metamodern aspectus approach generates a map for navigation from a state of non-comprehension to a state of adaptation, learning, and innovation. The Metamodern Aspectus is based on ideas and concepts that are both complex and dynamic as well as systemic and complicated.

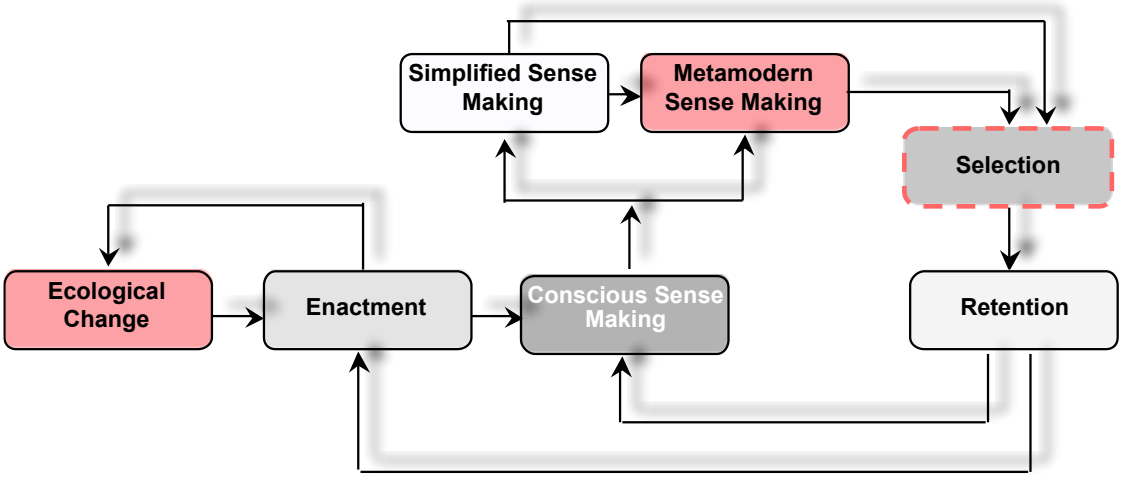
Aspectus System

The Aspectus system views sense making in two modes: first, sense making aimed at building a limited understanding of social systems and second, sense making aimed at building a comprehensive reality map of social systems. The Aspectus system accordingly proposes a segregation of sense making activities, first into a stream used to build a base understanding of social systems and second into a stream that will be utilized to build detailed reality maps of social systems. Conscious sense making was purposefully segregated into two differing approaches, first to preserve the historical categories of sense making that have been developed, and second, to emphasize that social systems are fundamentally different from other types of systems that have historically been used as models for social systems. The simplification category builds a base understanding of social systems but is ultimately an over-simplification that is useful for understanding basic aspects of social systems. Building on this knowledge, a metamodern approach to sense making can then be undertaken to create useful reality maps for meaningful navigation and interventions in a metamodern world. At the same time, the Aspectus system realizes that sense making is inherently an iterative process, as sense

making is refined and improved with every successive iteration. Figure 1.26 outlines the Aspectus system for sense making in social complexity.

Figure 1.26

Aspectus System



While the conception of sense making developed in Figure 1.26 builds a linear view of sense making, the process is not considered to be linear but rather the product of the interplay between multiple experiences, reflection, and patterns that lead to cognition. What is important is that sense making must first be undertaken as a conscious process and should be viewed as a process which is subtle, important, vital, iterative, and instrumental and should not be taken for granted. Sense making is thus central to the determination of human behavior, actions, and interventions within social systems and must thus be undertaken as a conscious set of activities due to its role as the primary site where meanings are made concrete, informing while also constraining identity and action.

Simplified Sense Making

Simplified sense making is the act of over-simplifying social systems to understand either their dynamic nature or their complicatedness. Simplified sense making invariably builds an imperfect picture of social systems, as the dynamic and complicated aspects cannot be viewed in isolation in social systems because they create an emergent property when functioning together, which is unique in social systems. This emergent property is not only dynamic and complicated but also like neither, and as such, a pure mixing of the two approaches that has limited applicability when dealing with social systems. Despite this, it is still useful to build an understanding of these components in order to provide a basis for sense making and action. When engaging in simplified sense making, it is thus important to remember that this approach will create only a base view of either of these aspects and thus casts sense making to extremes that are not applicable in real social systems. Simplified sense making is, however, useful to identify some of the generative mechanisms which could be operating in real social systems and thus helps to uncover some import aspects of social systems which can be utilized to improve metamodern sense making.

Figure 1.27

Simplification Approach to Sense Making in Social Complexity

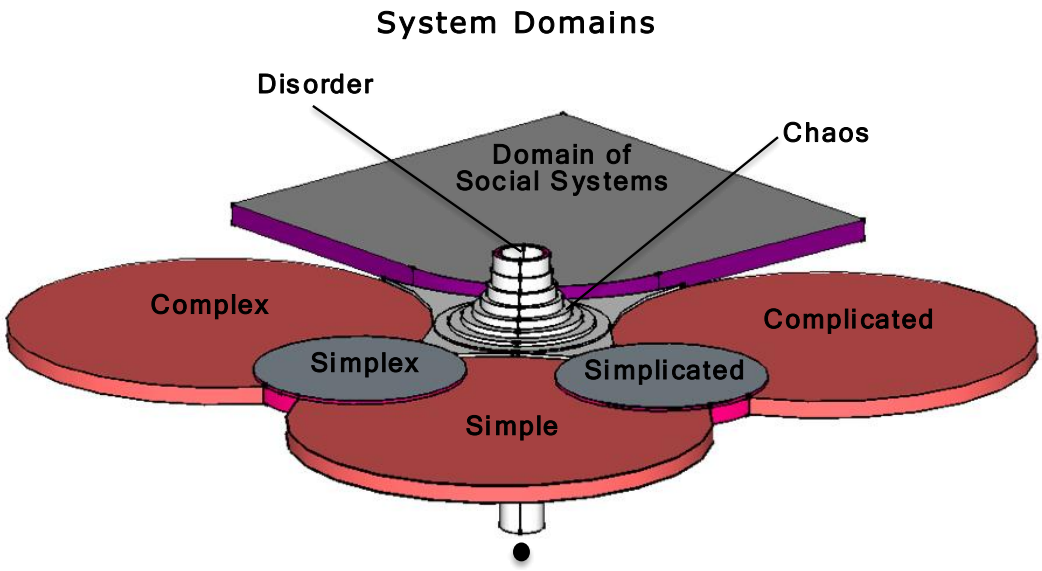
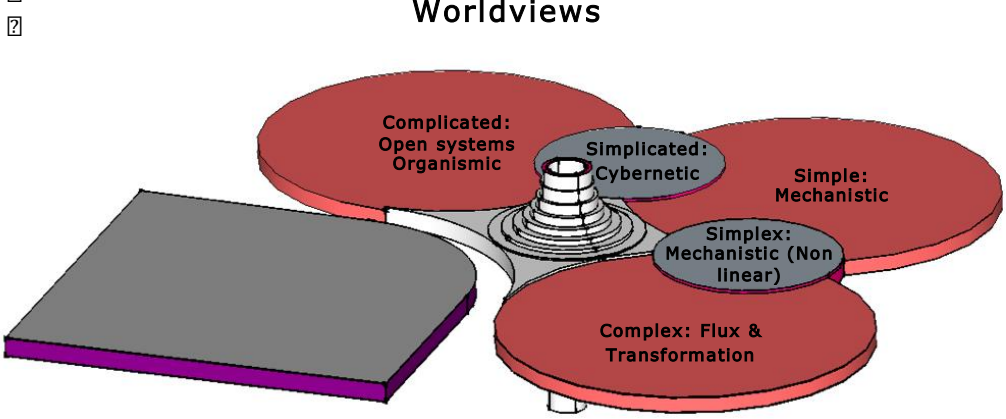


Figure 1.27 outlines the simplified approach to sense making which builds only a base understanding for social systems and how the approach classifies worldviews and the states of chaos and disorder.

The simplified sense making approach builds a reality map of social systems which is binary along two dimensions: first the dynamic, which is a continuum from simple to complex or along the second dimension of complicatedness which is a continuum from simple to complicated. At the same time, it incorporates ideas from earlier sense making approaches by recognizing the chaotic and disordered dimensions. Chaos in this model is portrayed as an upside-down cone, illustrating that when a system moves into the domain of chaos, it requires energy from its environment to sustain chaotic behavior. The further the system moves up the cone the greater the energy required will be and the more chaotic the system will be. Systems in chaos can at any time slow down and be pulled back into one of the identified domains or descend into disorder from which a system can also emerge into any domain. The simplified approach to sense making does not allow for the mixing of systems states but is purely designed to build base knowledge for sense making by developing an understanding of the idealized systems states that have been imported to social systems science from the hard sciences. The worldviews utilized in each of the domains for sense making concurrent with this logic also mirror the primary worldviews from the hard sciences, which have given birth to these systems domains. Figure 1.29 shows how the simplified sense making approach only considers systems to be in one



systems state at any given moment in time.

Figure 1.28

Understanding Disorder

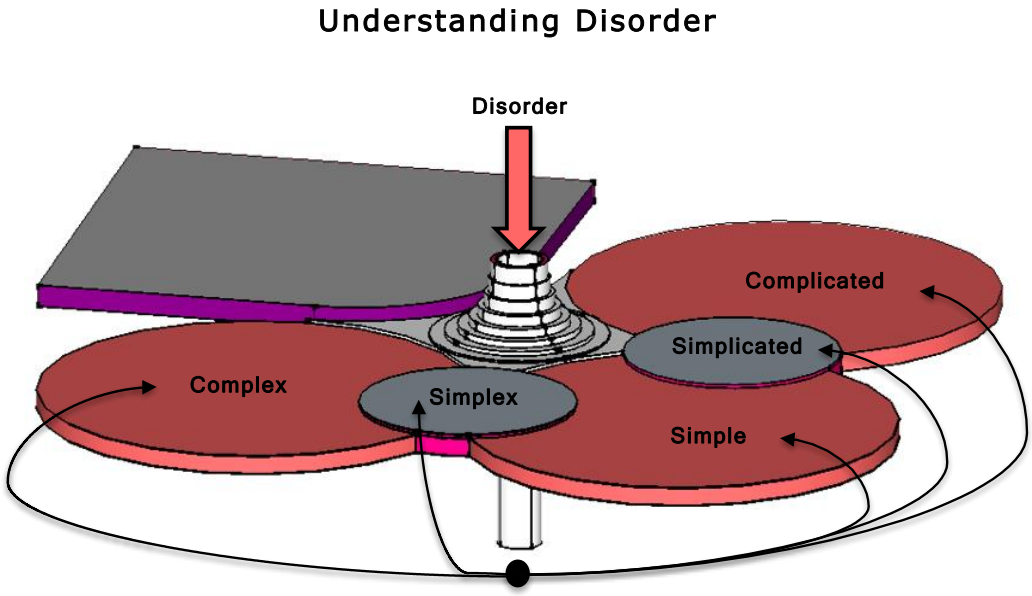


Figure 1.29

Simplified Sense Making Singular Domains

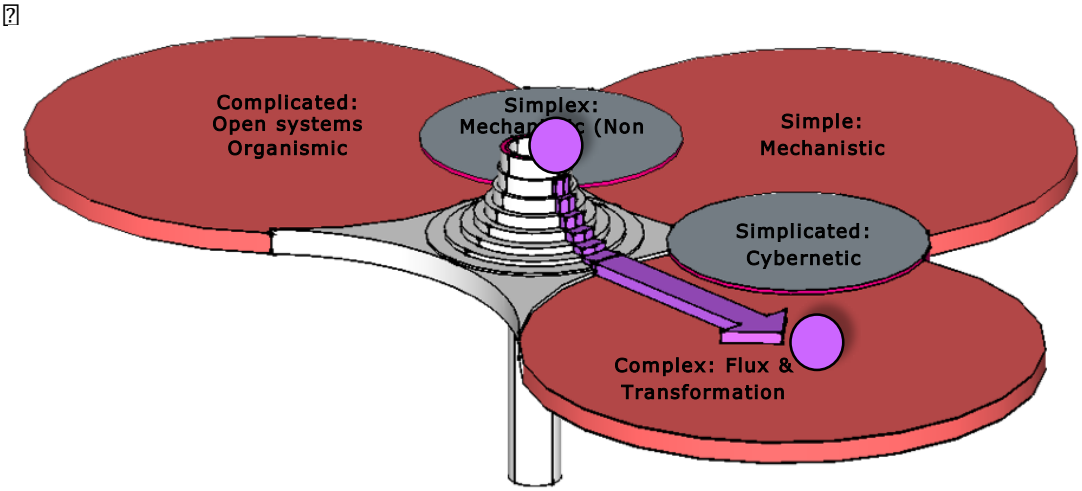


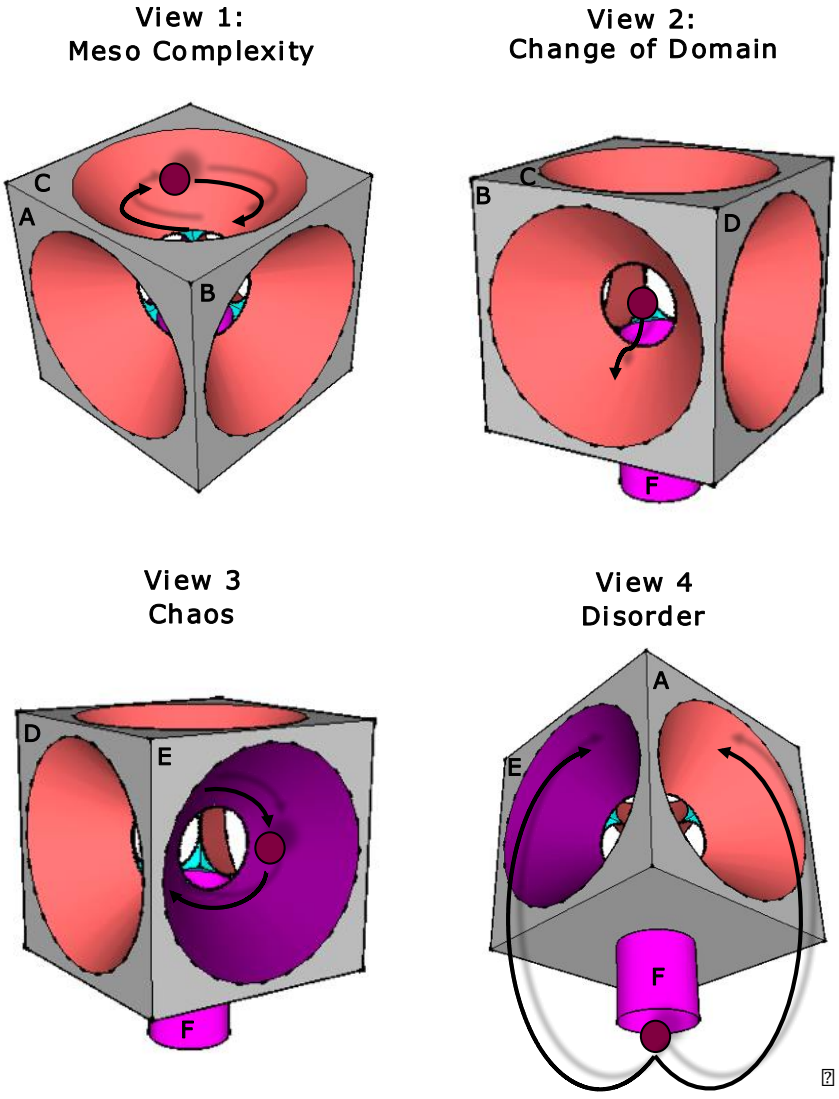
Figure 1.29 shows how the simplified approach to sense making considers systems to exist in only one domain at any given time and how the system is first singularly considered to exist in a chaotic

domain and then later considered to have moved to the complex domain.

Within each domain, methods can be applied that are consistent with the appropriate worldviews to assist with building a base understanding of each domain. The base understanding is, however, a singular view, because simplified sense making establishes a knowledge base for only a singular dimension of that idealized viewpoint of a social system. Therefore, the simplified approach is not suited to sense making in social systems but rather assists in understanding the pure extreme systems states which have been introduced into the social sciences.

Figure 1.30

Metamodern Sense Making



Metamodern sense making moves beyond simplified sense making by first realizing that social systems are both complex and complicated at the same time, while also realizing that social systems have unique qualities which emerge from the interaction of complex and complicated characteristics. Social systems that are often made sense of at extremely simplified positions are also considered to require a new and entirely distinct approach to sense making due to their uniqueness.

Figure 1.31

Metamodern Sense Making: An Introduction

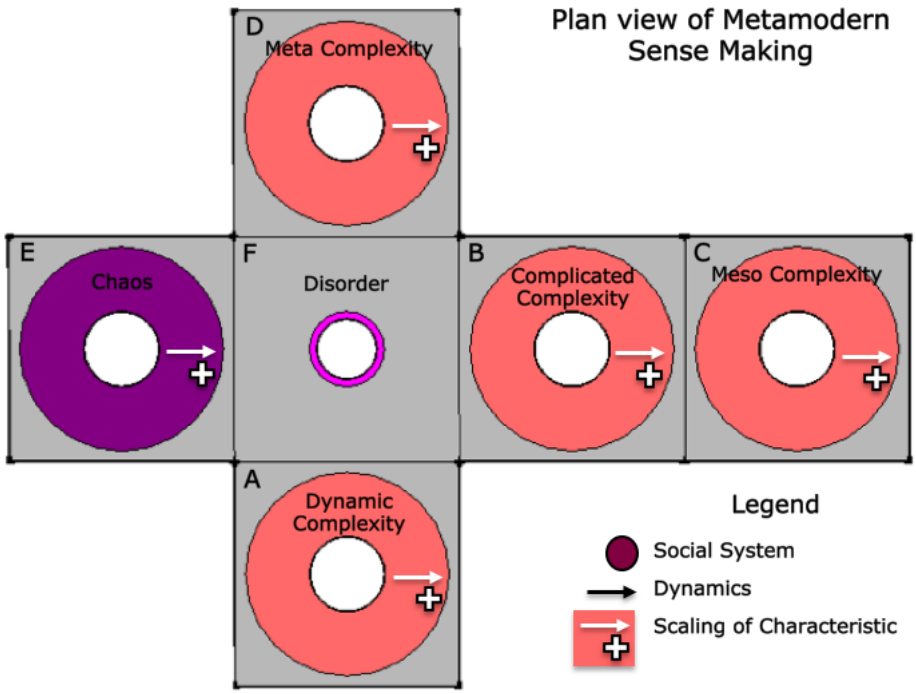


Figure 1.30 depicts the metamodern approach to sense making in social complexity which, unlike other sense making approaches, builds a three-dimensional view of sense making in social systems. The metamodern approach proposes that social systems have four core domains: *dynamic complexity, complicated complexity, meso complexity*, and *meta complexity*, and are defined by *constraints, complex dynamics, complicatedness, and decomposability*. *Dynamic complexity* is distinguished by a predisposition of complex dynamics in a social system in which constraints enable

the system. *Complicated complexity* is defined by a predisposition of complicatedness in a social system in which the social system is *governed* by constraints. In both cases, complex dynamics and complicatedness are both present, but one of the two characteristics tends to dominate the other in these two domains. *Meso complexity* is defined by social systems' decomposability of adaptive and complicated hierarchies that could be partially decomposed and that are governed by constraints but which at the same time have enabling constraints. *Meta complexity* is defined by decomposability of social systems and deals with social systems that have developed adaptive and complicated hierarchies which are not decomposable and thus can be considered only in their entirety. The domains of chaos and disorder are further considered to exist in metamodern sense making similarly to the simplified model of sense making.

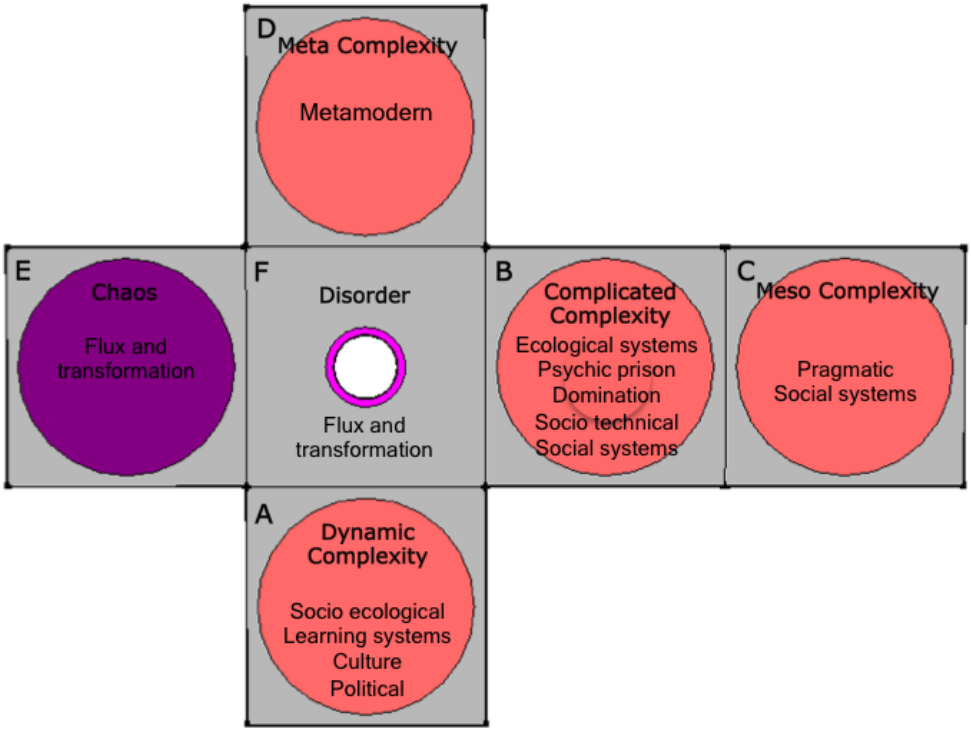
As Figure 1.30 illustrates, in metamodern sense making, social systems are considered to be attracted to either the dynamic complexity attractor, complicated complexity attractor, meso complexity attractor, chaos attractor, disorder, or the metamodern attractor. View 1 and View 3 in Figure 1.30 show that these point attractors entice systems to orbit around them, requiring energy and inputs from their environment to maintain their orbits. Social systems, however, all function in far-from-equilibrium conditions, and accordingly, these orbits should be considered to be random and irregular. The higher the system is along the cone, the greater the influence of the point attractor is considered to be. View 2 in Figure 1.30, in line with metamodern philosophy, also shows that phase shifts are entirely possible and probable as social systems can move from any of the domains identified above at any time. Phase shifts clearly require energy from the environment to transform either the structure, dynamics, culture, politics, or relationships in social systems and are not necessarily always related to performance improvement or systems expansion. Once a social system descends into disorder, as View 4 illustrates, it could potentially emerge in any of the applicable social systems domains.

The metamodern approach to sense making, similar to the simplified approach, relies on worldviews for forming reality maps of social systems in each of the identified domains of social

systems functioning. The worldviews for each domain were developed from the analysis and correspond to the worldviews identified in Figure 1.25. Within each domain, methods consistent with the relevant worldviews can correspondingly be applied first to build an understanding of social systems functioning and second to develop interventions to navigate the complex dynamics and complicatedness of social systems. By using worldviews as the basis for forming reality maps in each of the domains of social system function, the metamodern approach ties sense making and action to well-developed ideas and techniques in the field of systems thinking. Figure 1.32 identifies the applicable worldviews for each of the social system domains in the metamodern approach to sense making.

Figure 1.32

Worldviews for Metamodern Sense Making

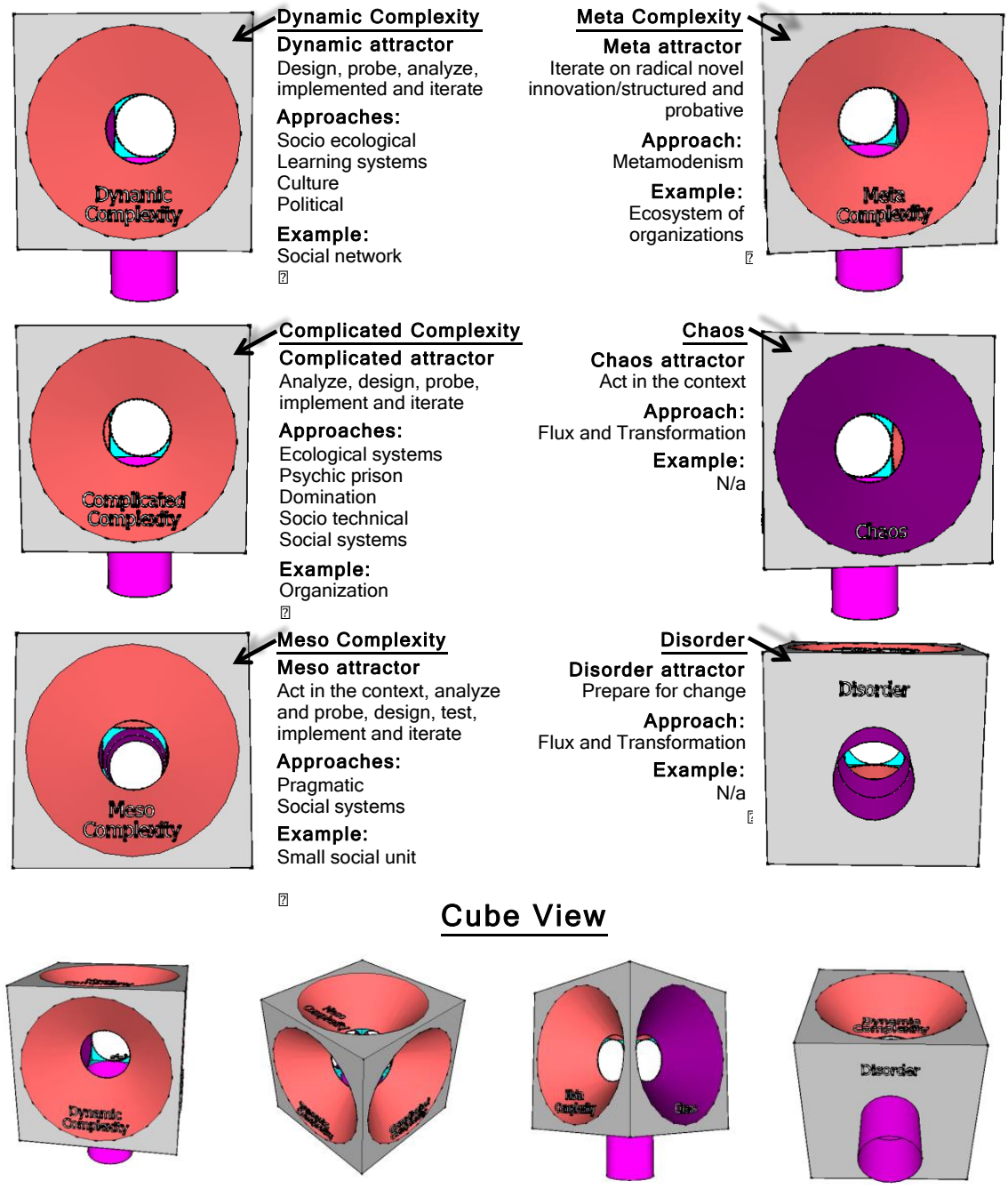


Each domain of the metamodern sense making framework proposes a different type of practice to deal with the different domains of social systems. In dynamic complexity, the prescribed approach is design, probe, analyze, implement, and iterate. In complicated complexity the prescribed approach is

analyze, design, probe, implement, and iterate. In meso complexity the prescribed approach is act in the context, analyze, probe, design, test, implement, and iterate. In meta complexity the prescribed approach is simply to iterate on radical, novel innovation that is both probative and structured at the same time, while also trying to identify the emergent characteristics between complex dynamic and complicatedness Figure 1.33 outlines the metamodern approach to sense making in each of the identified contexts and the associated approaches.

Figure 1.33

Metamodern Sense Making



By combining the prescriptive practices together with the identified worldviews and the underlying methods associated with each worldview, the metamodern approach to sense making

develops a way of sensing that assists in identifying what methods and approach should be adopted when working with social systems in different contexts.

Thought Experiment

The thought experiment in this study is directed at the Aspectus system and is functional in that it describes how the proposed theory could be implemented in reality. The aim of this section of the study is to draw attention to the theory by demonstrating its application. Such a thought experiment is required to establish the role of the Aspectus system in sense making and, more generally, how it will be applied in social systems to assist practitioners in dealing with dynamic complexities and complicatedness.

The Context for the Thought Experiment

Aero 1 (the fictitious name given to a company) is a large global manufacturer of aerospace engines. In the beginning of 2021 Aero 1 launched a new, more fuel-efficient engine, the A100, that was fitted to 35% of narrow-body airliners around the world, due to its superior reduction in operating costs. In mid-June, 2021, two tragic, major aircraft accidents occurred within weeks of each other to aircraft fitted with the new engines. After an extensive investigation, the cause of both of the accidents was assigned to software failures in the A100 engine. The entire global fleet of aircraft fitted with A100 engines was subsequently grounded in the interest of safety. The reputational damage from the incidents was colossal for Aero 1, as the company for many years had been seen as the industry leader in safety and had worked closely with relevant aerospace authorities to develop certification procedures for the aerospace industry. One of the major findings from the accident reports indicated that a breakdown in safety culture had occurred. The reports confirmed that Aero 1, the manufacturer, had kept relevant safety data about malfunctioning software from certification authorities in order to ensure early certification of the new engine. In addition to the reputational damage and legal liability, Aero 1 was also affected by the reduced utilization of the fleet of engines

As a result, Aero 1 was not able to realize their engine delivery and sales goals for 2021, and were forced to assimilate the huge capital investment cost by setting up a new production line for the A100 engine, significantly eroding capital reserves. Aero 1 consequently had to furlong employees and defaulted on supplier payments and contracts for the program. Due to the significant challenges faced by Aero 1, the senior management decided to contract with D-Squared process consulting (fictional name) to assist Aero 1 in redesigning its A100 engine program from a business perspective, so that they could quickly address the design deficiencies and get the engines safe and recertified for commercial use. D-Squared process consultants are avid users of the Aspectus system of sense making, and the section below shows how the Aspectus system could be utilized by consultants and by Aero 1 to assist the company with its current and future challenges.

Applying the Aspectus System of Sense Making

In its simplest incarnation, the Aspectus system simply functions as a guide for classifying management challenges, strategies, and approaches. The first application of the Aspectus system thus would be to assist mangers, leaders, and staff at Aero 1 to understand whether or not they had selected an appropriate approach and thus an appropriate worldview for their particular challenge. In line with the difficulties in the A100 engine program, Aero 1 and D-Squared process consultants could evaluate this program to see if and how the current situation could be improved. To do so, D-Squared consulting would schedule a sense making workshop with the design, manufacturing, and program management team for the A100 program. The group must be very diverse and include a number of representatives for all aspects of the program. In the initial part of the workshop, the D-Squared consulting team would first educate the participants briefly on the basic principles of social systems. After concluding this phase, the D-Squared consulting team would then show the participants the Aspectus system and explain the simplified and metamodern approaches to sense making. Moving back to the A100 program, the D-squared consultants then would ask the participants to subdivide themselves into small groups and to write out as many short narratives about different aspects of the A100 engine program as

they could think of in 40 minutes. After completion, each group would be asked to place their narratives on a white board, grouping them according to the primary domains of simplified sense making: simple, simplex, complex, simplicated, complicated, and disorder or chaos. Headings would then be added to the white board, and the narratives would then be placed around each of the three primary domains and marked as being part of this domain. After this is completed, each of the groups, together with the facilitators from D-Squared, would then identify themes for each of the narratives, for example, fan blade manufacturing, software design, and so on. Each of the themes identified by the groups would then be grouped within the larger functional management groups of the program, e.g., A100 design, A100 manufacturing, A100 procurements, A100 Quality assurance, A100 redesign, A100 purchasing and logistics, A100 program management, A100 finance, and so on. Each of the sub groups that developed the narratives would then be asked to assemble the narratives that have been identified as either simple, complex, or complicated, under each of the functional management groups and the themes that were identified. Under each of the of the program categories, such as *A100 design* and software design there would now be a number of narratives which have been marked as simple, simplex, complex, simplicated, complicated, and disorder or chaos. What immediately would become apparent from this exercise is that within any social system or its subgroups there may be aspects that are both complicated and complex. Having now engaged in simplified sense making to develop some initial ideas about the A100 social system, the D-squared consulting team would initiate the process of metamodern sense making.

In order to engage in metamodern sense making, the D-Squared consultants, with the participants, would first review the metamodern approach to sense making, in particular the differing worldviews, and explain again the differences between dynamic complexity, complicated complexity, meso complexity, meta complexity, disorder, and chaos. All the participants in the room would then be asked to first look at all the themes that were developed with the sub narratives and then to consider if any of these themes are dominated by either complex characteristics or complicated characteristics.

The participants would then vote for a dominant characteristic by placing colored dots on each of the themes. Once all the themes were voted on, each of the larger functional management groups would then be considered. Participants would be asked to consider first if any of these groups are dominated by either complex or complicated characteristics, or if they are about equal. Second, all would be asked to assess whether the larger functional management groups can be considered as systems in their own right or if they can be understood only in the context of the whole program when they work in concert with other systems. Next, participants would be asked to vote again on the functional management categories. Based on this assessment, it would now become clear, for example, that the A100 engine assembly line is classified as complicated complexity, the purchasing network for the A100 program is, seen as dynamic complexity, while the design office is viewed as meso complexity. All the participants would agree that in this case the system is decomposable into smaller sub systems.

Based on this exercise, the group now would have a number of worldviews which they can use to build some reality maps of the different parts of the A100 program. Based on these worldviews, the Aero I group and D-Squared consulting could now select some appropriate approaches to evaluate the program. For the design and management teams, they would select Interactive Planning, Soft Systems Methodology, and a System of Systems Methodology. These approaches are all based on a social systems worldview and appropriate for the context as identified by the metamodern approach to sense making. For the production environment, they would select a social technical systems approach, while for the purchasing network, they would select a learning systems approach. Seeing that appropriate worldviews have now been adopted and appropriate methods identified, D-Squared process consultants could now continue with the implementation of these consulting methodologies to address deficiencies in the A100 program.

While the categorization outlined above appears static in nature, it is actually an iterative process allowing for iterative sense making as outlined by the Aspectus system. The Aspectus system of sense making, and particularly the metamodern component, affirms that social systems are always in

a state of flux, as the dynamics and complicatedness of social systems evolve in an ongoing fashion. This view helps participants who are engaged in this conscious process of sense making to understand that social systems are always in a state of change as dynamic and complicated components interact in an ongoing fashion that gives rise to emergent characteristics and also to phase shifts as systems constantly evolve. Examining any phase shift in social systems is thus important, as it can be key to understanding changes that have occurred in social systems. Any transition to the domain of chaos in social systems, however, requires special attention, as these shifts will occur rapidly and without warning. In the case of the A100 program, this transition was facilitated by the aircraft accidents in early June 2021. In the greater scheme of things, it is thus important for participants to remember that minor changes can have a major impact in social systems, facilitating a complete phase shift from any state to complete chaos.

The Aspectus system of sense making creates opportunities for shared sense making from which a mutual understanding can be developed and upon which a meaningful foundation can be built for appropriate action. Consequently, any actions that are developed out of the process consulting engagements should be owned by the group. While the process is clearly challenging for a big group, it does make individual group members aware of the dangers of defaulting to standard worldviews and models when, in fact, a divergent approach may be necessary to address the complex and complicatedness of their reality.

Conclusions

The Aspectus system of sense making asserts that differing worldviews are essential to sense making in social systems in differing systems states, domains, contexts, and situations. At the same time, Aspectus emphasizes that differing management theories, methods, tools, and techniques are more and/or less applicable to different types of problems, systems states, and situations and that these approaches are based on a particular worldview. With its two approaches to sense making, the Aspectus system is also a more complete and less ambiguous system of conscious, multi-ontological

sense making, as it addresses a wider range of system states, domains, and problems than prior approaches. The Aspectus system accordingly builds more appropriate understandings of social systems and of complexity by embracing a more holistic approach to sense making.

CHAPTER 8: CONCLUSIONS

The overarching theme behind this study was to revise the theoretical foundation for visualizing, understanding, and responding to complexity in social systems. More specifically, the study was designed to develop a conceptual scheme that will aid in improving multi-ontological sense making in social systems. In doing so, this study identified some new theoretical foundations and practical guidance which could have an impact on the way in which complexity can be visualized, understood, and dealt with in social systems which were shown to be both complex and complicated at the same time.

Summary of Findings

The overall aim and objective of this study was to explore, investigate, understand, and develop an integrated and holistic perspective of multi-ontological sense making and worldviews in social systems that were shown to be both complex and complicated. Two research questions were developed in Chapter 1 to inquire, explore, investigate, evaluate, and understand the relationships among philosophy, worldviews and sense making. To answer the research questions and to satisfy the aims and objectives of this study, the research adopted a qualitative, meta-synthesis approach both to develop theory, and to develop a framework for matching management approaches, tools, and techniques to corresponding worldviews for use in dynamic social systems. The research was sequential and comprised of: 1) a content analysis of worldviews to develop a classification framework, 2) the classification and categorization of strategy consulting approaches to complexity in order to understand sense making and ontological mapping in social systems 3) The design and development of theory based on a meta-synthesis of the research findings, and 4) a thought experiment to demonstrate how the theory would be utilized in practice. Important findings from the four phases of the study are presented in Table 1.23.

Table 1.23

Summary of Key Findings

Topic	Findings
Sense making	• Sense making is a vital process for understanding and responding to complexity. • Sense making is reliant on meta worldviews for building realty maps of our social reality. • Traditional sense making approaches do not utilize worldviews. • Traditional sense making approaches are grounded in either a complicated perspective of social systems or a complexity perspective of social reality. • Traditional approaches to sense making cast social systems into idealized states and assume binary positions about complex and complicated characteristics.
Social systems	• Are both complex and complicated at the same time and cannot simply be viewed at extreme states. • Social systems are, however, not simply a mix of the complex, the dynamic, and complicatedness but rather something new and transformative which is quite unlike any domain. • Mixed method approaches have limited utility in social systems due to this transformative emergent characteristic which is unlike any domain.
Philosophical positions	• Worldviews are founded upon strong philosophical foundations. • Understanding the philosophical positions which underpin worldviews is critical to understanding collective and individual sense making.
Meta modernism	• Metamodernism as a new philosophy for organization theory proposes that social systems are both modern and postmodern while at the same time being neither of them. While metamodernism has never been utilized as a philosophical approach for organization theory, it is the contention of this study that it is the most well suited philosophy for understanding the dynamics of complex social systems that are both and neither complex, complicated, dynamic, or static.
Meta worldviews	• Meta worldviews shape our reality as they frame the ways that our shared reality is described, discussed, and communicated in social systems. • 16 Meta worldviews exist for forming reality maps of social systems • While individual worldviews tend to be a hybrid worldview consisting of a number of perspectives, individuals are channeled into thinking within a specific meta worldview when they adopt a specific technique or method of analysis in social systems. • A metamodern worldview is the most suited worldview for understanding social systems that are highly complex and complicated.

	• Specific meta worldviews were clearly identified as being linked to specific types of consulting engagements that had specific applicability to differing social systems contexts and states.
Expert and consulting patient consulting	• Expert and doctor patient consulting approaches, the most popular in the consulting industry, focus consulting engagements exclusively on the simple corner of ontological mapping. • Expert and doctor patient consulting approaches were shown to be ineffective in complexity in social systems due to their exclusively simple ontological orientation. • While technology is considered to be an important component of contemporary strategy consulting, it receives little consideration in expert and doctor patient consulting literature, as it is viewed only as an enabler.
Emergent consulting	• Emergent consulting approaches were shown to focus on consulting engagements exclusively on the complex corner of ontological mapping. • Emergent consulting approaches were shown to be regarded as an anti-strategy approach by traditional expert and doctor patient consultants. • Emergent consulting approaches were also shown to be ineffective with complexity in social systems due to their exclusively complex ontological orientation. • While technology is considered an impotent component of contemporary strategy consulting, it receives little consideration in emergent consulting literature as it is viewed as only an enabler.
Process consulting	• Process consulting was identified as the only consulting approach to use differing worldviews to understand both the specific context and situations unique to each social system. • The process consulting approach was shown to depend on sense making to aid in matching the appropriate methods, tools and techniques to the appropriate situations and contexts in social systems. • Process consulting approaches were also shown to be regarded by traditional expert and doctor patient consultants as anti-strategy approaches. • While technology is considered an important component of contemporary strategy consulting, it receives little consideration in the process consulting literature, as it is viewed as only an enabler.
Aspectus system	• Emphasizes that sense making should be bisected into simplified sense making in idealized systems states and metamodern sense making for social systems. • Binds sense making and worldviews together to develop a holistic system of sense making. • Links worldviews to appropriate methods, techniques, and tools for appropriate and context-specific interventions in complex and complicated social systems.

The findings summarized in Table 1.23 supported the orientations and assertions of the two primary research questions while also broadening these perspectives. This study further formulated theory about multi-ontological sense making in dynamic social systems and developed a framework for the classification of strategy consulting approaches, methods, tools, and techniques to generate contextually appropriate understandings.

Conclusions

Management thinking has historically been focused on leading, directing, and controlling social systems. However, complexity in social systems cannot be managed and controlled in the manner in which companies, leaders, and managers have been told and taught, because planned actions and strategies based on outdated reality maps are inadequate in dynamic and complicated environments. The only real and plausible alternative is to attempt to navigate complexity. Navigation is different from leading and controlling because it relates to determining how to steer in a context that is ambiguous, changing, and multi-dimensional. In this sense, learning how to steer involves the important process of iterative, multi-ontological sense making and not any form of strategizing, leading, planning, or controlling to understand the unfolding context

Sense making, as a critical process in comprehending, understanding, and responding to complexity in the world around us, builds reality maps of what is happening in the here-and-now. These reality maps, as identified by Choo (2002), Weick et al. (2005) and Aaltonen (2007), are used both to imagine hypothetical alternatives in prospective sense making and to understand current and past events by reconstructing reality from past experience in retrospective sense making. Sense making's key components are 1) inputs from the environment and 2) worldviews that provide the reality maps for forming beliefs and assumptions about reality. As Snowden (2005) and Andersson and Törnberg (2018) noted, problems in understanding and dealing with complexity occur when researchers, scholars, and practitioners assume only one position while attempting to comprehend and solve real world problems. Multi-ontological sense making in social systems thus requires the use of different worldviews to

generate contextually appropriate understandings and insights for action in different systems states and contexts.

Kurtz and Snowden's (2003) Cynefin framework is a multi-ontological approach to sense making in that it outlines an approach for understanding different domains of social system functioning. The Cynefin framework, however, distinguishes between ontological domains based on the descriptions of causality and does not incorporate worldviews for understanding complexity. The Cynefin framework also develops a view of complexity which is based on only a complexity science perspective of complicatedness and complexity as two opposing social systems contexts. Social systems as identified by Andersson, et al. (2014) and Andersson and Törnberg (2018), however, are in opposition to this conception and are shown to reside in different domains and contexts as they are both complex and complicated at the same time and thus require a distinct approach. While models were identified for describing complex dynamics and complicatedness in social systems, there are no frameworks or aids to explain the system of worldviews required to generate contextually appropriate understandings and insights for actions in multi-dimensional social systems that rank highly in both complex dynamics and complicatedness. Also non-existent are a detailed approach for linking worldviews to appropriate management tools and methods for use with each worldview as a guide for action for managers, researchers, and practitioners. The primary problem was summarized in Chapter 1:

> **What system of worldviews is required for multi-ontological sense making to generate contextually appropriate models for understanding, insights, and actions in social systems?**

Given the particular problem statement, the primary research aims of this study were:

1. **To develop new, multi-ontological conceptual systems of worldviews in order to understand and visualize the domains of social system functioning in order to then enable greater cognitive effectiveness in sense making.**

2. **To identify appropriate tools and methods that can be appropriately utilized in the different states of social systems' functioning in order to improve mental effectiveness in dealing with social systems.**

Based on these aims, this study adopted a qualitative, meta-synthesis approach to develop both theory and a framework for matching management approaches, tools, and techniques to corresponding worldviews for use in dynamic social systems. The research design was sequential and comprised of: 1) a content analysis of worldviews to develop a classification framework, 2) classification and categorization of strategy consulting approaches to relating to complexity to understand sense making and ontological mapping in social systems 3) the design and development of theory based on a meta-synthesis of the research findings and 4) a thought experiment to demonstrate how the theory would be utilized in practice.

The content analysis phase of the inquiry first developed a classification framework for consulting approaches and management techniques according to their underlying worldviews. This framework was then used to classify and categorize existing strategy consulting approaches in order to understand what approaches have been adopted to complexity in social systems. This research revealed that:

1. Expert and doctor patient consulting approaches, which are the most popular in the strategy consulting industry, focus strategy consulting engagements exclusively on simple understandings of social systems and build a highly causal map of social reality.
2. Expert and doctor patient consulting approaches are not well suited to dealing with complex and complicated social systems.
3. Emergent consulting approaches focus strategy consulting engagements exclusively on complex understandings of social systems and build only a dynamic map of social reality.

4. Emergent consulting approaches are not well suited to dealing with complex and complicated social systems.
5. Process consulting is the only strategy consulting approach to use differing worldviews to understand the contexts and situations that are unique to social systems and thus to build a multi-dimensional, worldview-driven map of social reality.
6. Process consulting approaches to strategy consulting are considered by the strategic consulting industry to be anti-strategy.

The results from the first two phases of the study were then combined with the existing literature on multi-ontological sense making, worldviews, and philosophy to design and develop a new theory of sense making that incorporates worldviews. The new theory of sense making was named the Aspectus system to reflect a combination of the old Latin and the new idea and also to emphasize the duality of metamodernism and of social systems that are both complex and complicated.

The Aspectus system as a new theory of sense making stresses the importance of segregating sense making activities in social systems into two distinct worldview-driven categories: simplified sense making which informs and is followed by metamodern sense making. In doing so, the Aspectus system moves worldview-driven sense making in social systems into a separate domain, emphasizing that social systems must be considered as both complex and complicated and also distinct from other types of systems. By so dividing sense making, the Aspectus system also shows that the traditional approaches to multi-ontological sense making are flawed, as they consider only idealized systems states that are unattainable in real social systems that are both complex and complicated at the same time. The Aspectus system further employs a new approach to organization theory by adopting a metamodern approach to meta complexity which is based on the ideas of metamodern philosophy. This new philosophical basis was required to transcend the ineffective mixed methods approach in multi-dimensional social systems that rank highly in terms of both complex dynamics and complicatedness.

The Aspectus system thus establishes a new foundation for a new approach and methods for irreducible multi-dimensional social systems. In this study, the Aspectus system was then applied in a thought experiment to demonstrate how it could be practically applied in a consulting setting and to demonstrate how methods could then be selected which match an underlying worldview. The proposition that was explored in this research can be restated as follows:

> *A worldview-driven, metamodern approach to multi-ontological sense making in irreducible complex and complicated social systems generates contextually appropriate models for understanding, insights, and actions.*

Summary of Contributions

The findings of this research provide contributions to the existing literature on organization theory, worldviews, multi-ontological sense making, and strategy consulting. The primary theoretical contributions of this study to each of these subject areas are discussed below.

- **Contributions to organization theory:** The research in this study makes a contribution to existing literature on organization theory by identifying metamodern philosophy as an appropriate approach to understanding and interpreting irreducible social systems that are both complex and complicated. Metamodern philosophy, since its inception, has primarily been viewed as a philosophy best suited to explaining many of the cultural dimensions of the social world which postmodern philosophy and modernism have failed to resolve. Its application to organizations is thus a departure from its initial intent and a new contribution to the field of organization theory.
- **Contributions to worldviews:** The research in this study makes a contribution to the body of knowledge on worldviews in two primary ways. First, this study brings together all the primary meta worldviews of organization and organizing in one place. While repositories of organizational meta worldviews have been developed before, none of them cover the subject as comprehensively as was done in this research

which identified16 distinct worldviews for social systems. Second, this research contributes to the body of knowledge on worldviews by incorporating the metamodern worldview into in the meta worldviews of social systems.

- **Contributions to strategy consulting:** The research in this study contributes to the body of knowledge on strategy consulting in three primary ways. First, this study matches and identifies the primary worldviews to a large sample of strategy consulting approaches from all four spheres of strategy consulting, namely the expert, doctor patient, process, and emergent consulting approaches, which has not been done comprehensively before. Second, the findings in this research also indicate that the efficacy of the four overarching approaches of strategy consulting varies significantly according to the context and situation in social systems. The utility of strategy consulting has seldom been evaluated, as most of the approaches are generally considered to be applicable to all contexts. Last, this study accurately maps the situations and contexts to which differing approaches of strategic consulting are more suited.
- **Contributions to complexity in social systems:** The research in this study contributes to the body of knowledge on complexity in social systems by confirming the postulate of Andersson, et al. (2014). Andersson, et al. (2014) hypothesized that sense making engagements cast the different perspectives of social systems into the different quadrants of the spectrum of overwhelming systems, namely the simple, complex, and complicated. The findings from the research in Chapter 6 confirmed this hypothesis by determining that strategy consulting engagements cast sense making, understanding, and action primarily into the simple, complex, and complicated quadrants of the spectrum of overwhelming systems.

- **Contributions to multi-ontological sense making:** The research in this study makes a contribution to the body of knowledge on multi-ontological sense making in three critical areas. First, it demonstrates that existing frameworks for multi-ontological sense making are too simplistic for understanding social systems that are both complex and complicated at the same time. The existing frames develop idealized descriptions of social systems that are not attainable in reality and are thus an over-simplification that limits their utility in developing actionable outcomes in social systems. Second, the research demonstrates how methods, techniques, and consulting engagements can be matched to appropriate systems contexts by evaluating the underlying worldview of a method or technique. Last, this study proposes a new, worldview-driven theory for multi-ontological sense making that incorporates both the complex and complicatedness of social systems into sense making and the understandings it develops of the social world.

Limitations of the study

Several limitations of the current research became evident as the data collection and analysis progressed. The conclusions drawn from the research should therefore be viewed within the context of the limitations and within the context of the research methodology. The primary limitations of this study are discussed below.

- Even though a rigorous approach was adopted to the sampling of the literature for the evaluation of strategy consulting approaches, some limitations became evident during the research. The articles that were selected were primarily from books and only a few articles were covered from journals. While the books were comprehensive in their breadth in covering strategy consulting approaches, they were still inherently influenced by the personal style of the authors. The reason for relying on books for the sample stems from the fact that strategy consultants' knowledge about

consulting approaches is generally codified in books, due to the secretive nature of the industry.

- There is a scarcity of literature about the exact frameworks employed by strategy consulting practices, as most of the frameworks that are utilized are considered to be the intellectual property of these practices, the emphasis being on frameworks and not the theoretical content which generally tends to be generic among the major global consulting practices. Strategy consulting practices accordingly apply the same *theory* to consulting problems but tend to follow slightly different frameworks to facilitate the application of theory.
- While the expert and doctor patient approaches to strategy consulting are well defined from an academic perspective, the situation is less obvious in practice. Strategy consultants often take a blended approach, combining the expert and doctor patient approaches as well as recognizing that in reality, the same tools and techniques are applied in both approaches. Therefore, determining whether similar research was, in fact, about the expert or doctor patient consulting approaches presented some limitation for this research. This study managed this limitation by including literature in the doctor patient approach only if the text included a discussion about diagnosis. The impact of this limitation, while significant, was minimal in terms of our results, as both the expert and doctor patient approaches were exclusively focused on the simple domain of social systems functioning and thus had no significant effects on findings.
- While technology was identified as an important component of sense making in contemporary social systems, it is seldom seen as more than an enabler in strategy consulting literature which presented some limitations for this research. While one of goals of this research was to evaluate the role of technology on sense making in

social systems, the literature on consulting did not contain enough data to draw any credible inferences about the role of technology in sense making. Technology for the most part is viewed in the consulting literature as fulfilling only an enabling role, while in reality, through just our experience in our daily lives, we understand and know that technology has actually moved on from being only an enabler to mediating some of our interactions in social systems. Understanding the mediating effects of technology in consulting engagements would have contributed to building an enhanced understanding of the role of technology in sense making.

Suggestions for Further Research

The primary outcome of this research was to establish a revised theoretical foundation for visualizing, understanding, and responding to social systems in order to improve our understanding and responses to complexity. A conceptual scheme was also developed which has been shown to have both theoretical and practical implications for sense making and action in social systems that are both complex and complicated at the same time. In addition to the contributions of this research, it also provides some potential avenues for further research into metamodern approaches to address social systems.

The development of the Aspectus system in this research provides empirical researchers with the opportunity to evaluate its effectiveness by testing its application within social systems and also specifically in strategy consulting engagements. An opportunity also exists to evaluate the effectiveness of the Aspectus system in enhancing sense making of individuals. Ideally, this should be conducted as a longitudinal study to evaluate changes over time in an individual's sense making capabilities.

In the Aspectus system, underlying worldviews were shown to be important in selecting appropriate approaches to challenges in social systems, but no guidance was provided on which approaches within a particular worldview would have more applicability within that context. A potential opportunity accordingly exists to conduct comparative analysis between approaches within the same

underlying worldview to determine which approaches may be more applicable in a particular context as defined by the Aspectus system.

While technology was identified as an important component of sense making in contemporary social systems, it was shown to receive minimal consideration in strategy consulting literature. Further research into the role of technology as an integrated part of the services offered in strategy consulting engagements will be pivotal in coming years to broaden our understanding of how technology is increasingly mediating consulting engagements in social systems.

Metamodernism was put forth as a new approach for understanding complex, complicated social systems. While the new approach provides a foundation for understanding social systems which rank highly in terms of both complex dynamics and complicatedness, no metamodern techniques and approaches yet exist for addressing challenges in social systems.

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